

TABLE OF CONTENTS OF SPECIAL PROVISIONS

Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

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JANUARY 9, 2018

STATE PROJECT NO. 106-127

REHABILITATION OF BRIDGE NO. 00948
ROUTE 34 OVER WEPAWAUG RIVER

Town of Orange

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016, as revised by the Supplemental Specifications dated January 2018 (otherwise referred to collectively as "ConnDOT Form 817") is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 817 is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362>. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=2288&q=259258>. The Special Provisions relate in particular to the Rehabilitation of Bridge No. 00948 Route 34 over Wepawaug River in the Town of Orange.

CONTRACT TIME AND LIQUIDATED DAMAGES

One Hundred Eighty (180) calendar days will be allowed for completion of the work on this Contract and the liquidated damages charge to apply will be Two Thousand One Hundred Dollars (\$2,100.00) per calendar day.

NOTICE TO CONTRACTOR - PRE-BID QUESTIONS AND ANSWERS

Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 9:00 am Monday (i.e. typical Wednesday Bid Opening) the project(s) being bid will be closed for questions, at which time questions can no longer be submitted through the Q and A Website.**

Answers may be provided by the Department up to 12:00 noon, the day before the bid. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.

If a question needs to be asked the day before the bid date, please contact the Contracts Unit staff and email your question to dotcontracts@ct.gov immediately.

Contractors must identify their company name, contact person, contact email address and phone number when asking a question. The email address and phone number will not be made public.

The questions and answers (if any) located on the Q and A Website are hereby made part of the bid/contract solicitation documents (located on the State Contracting Portal), and resulting contract for the subject project(s). It is the bidder's responsibility to monitor, review, and become familiar with the questions and answers, as with all bid requirements and contract documents, prior to bidding. By signing the bid proposal and resulting contract, the bidder acknowledges receipt of, and agrees to the incorporation of the final list of Q and A, into the contract document.

Contractors will not be permitted to file a future claim based on lack of receipt, or knowledge of the questions and answers associated with a project. All bidding requirements and project information, including but not limited to contract plans, specifications, addenda, Q and A, Notice to Contractors, etc., are made public on the State Contracting Portal and/or the CTDOT website.

NOTICE TO CONTRACTOR - ALL-INCLUSIVE DRAINAGE

ADDED SECTIONS:

2.86 – DRAINAGE TRENCH EXCAVATION

ROCK IN DRAINAGE TRENCH EXCAVATION

5.86 – CATCH BASINS, MANHOLES AND DROP INLETS

6.86 – DRAINAGE PIPES

DRAINAGE PIPE ENDS

This Contract contains the above-noted Special Provisions for all-inclusive drainage, developed to replace the following Sections in their entireties:

- Section 5.07 – *Catch Basins, Manholes and Drop Inlets*
- Section 6.51 – *Culverts*
- Section 6.52 – *Culvert Ends*

The Section 5.86 and 6.86 items include excavation and bedding material in the drainage structure, pipe and pipe end unit prices.

Section 2.05 *Trench Excavation* may be included for miscellaneous trenching, where necessary, but will not be used with all-inclusive drainage items.

Other Standard Specifications, Supplemental Specifications or Special Provisions may contain references to Articles or Subarticles from previous versions of Sections 5.07, 6.51 and 6.52 which are no longer valid.

The following Standard Specifications Sections or Supplements contain references to Articles or Subarticles from Section 2.05 which shall remain in effect:

- Section 2.06 – *Ditch Excavation*
- Section 5.06 – *Retaining Walls, Endwalls and Steps*
- Section 7.51 – *Underdrains and Outlets*
- Section 10.01 – *Trenching and Backfilling*

‘Rock in Drainage Trench Excavation’ is now defined in Section 2.86. ‘Rock in Trench Excavation’ will remain in Section 2.05 and may be used with trenching not associated with all-inclusive drainage items.

Any references to Articles beginning with “5.07,” “6.51,” or “6.52” shall refer to the pertinent topic or materials in the new Special Provisions contained herein.

NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE STRENGTH

The concrete strength or allowable design stress specified in the General Notes is for design purposes only. The minimum compressive strength of concrete in constructed components shall comply with the requirements of Section 6.01 Concrete for Structures.

NOTICE TO CONTRACTOR - ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS

This Contract includes the application of materials subject to the Volatile Organic Compounds (VOC) content limits stated in the Regulations of Connecticut State Agencies (RCSA) Sections 22a-174-41 and -41a. All architectural and industrial maintenance (AIM) coatings and applications of such coatings must comply with these regulations.

The Contractor shall submit a Material Safety Data Sheet/Safety Data Sheet or Product Technical Data Sheet developed by the manufacturer of each material that may be subject to the Regulations. The submittal must verify both the type of AIM and its VOC Content. VOC content shall be determined based on the formulation data supplied by the materials manufacturer.

The Contractor may only use AIM coatings that contain VOCs below the respective coating category Phase II limits specified in Table 1 if either:

- a) the coating was manufactured on or after May 1, 2018, **or**
- b) the coating is being applied after April 30, 2021.

The Contractor may use AIM coatings that contain VOCs exceeding the respective coating category Phase II limits specified in Table 1 only if all of the following four conditions are met:

- a) the coating is being applied on or before April 30, 2021,
- b) the coating contains VOCs below the applicable Phase I limits specified in Table 1,
- c) the coating was manufactured prior to May 1, 2018, **and**
- d) the coating container(s) are dated (or date coded) as such.

For any coating that is not categorized within Table 1, the Contractor shall classify the coating as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥ 15 on an 85-degree meter and ≥ 5 on a 60-degree meter) - Nonflat Coating,
- Registers gloss of ≥ 70 on a 60-degree meter - Nonflat-High Gloss Coating.

The Contractor must close all containers of coating and solvent when not in use.

Coating container labels must display the date the coating was manufactured, the manufacturer's recommendation regarding thinning with solvent, and the coating's VOC content in grams per liter (g/L) of coating. Certain coating categories as noted in Table 1 have additional labeling requirements.

The Contractor may add additional solvent to a coating only if such addition does not cause the coating to exceed the applicable VOC limit specified Table 1. The Contractor must adhere to type(s) of solvent and maximum amount of solvent recommended by coating manufacturer.

VOC content of a thinned coating shall be the VOC content as listed by the manufacturer after thinning in accordance with its recommendation.

TABLE 1		
Coating Category	Phase I	Phase II
	manufactured prior to May 1, 2018 VOC content limit (g/L)	manufactured on or after May 1, 2018 VOC content limit (g/L)
Aluminum roof coating	--- ¹	450
Antenna coating	530	--- ¹
Antifouling coating	400	--- ¹
Basement specialty coating	--- ¹	400
Bituminous roof coating	300	270
Bituminous roof primer	350	350
Bond breaker	350	350
Calcimine recoater	475	475
Clear wood coating - Clear brushing lacquer ²	680	275
Clear wood coating - Lacquer ^{2,3}	550	275
Clear wood coating - Sanding sealer ^{2,4}	350	275
Clear wood coating - Varnish ²	350	275
Concrete curing compound	350	350
Concrete or masonry sealer/ Waterproofing concrete or masonry sealer	400	100
Concrete surface retarder	780	780
Conjugated oil varnish	--- ¹	450
Conversion varnish	725	725
Driveway sealer	--- ¹	50
Dry fog coating	400	150
Faux finishing coating ²	350	350
Fire resistive coating	350	350
Fire retardant coating - Clear	650	--- ¹
Fire retardant coating - Opaque	350	--- ¹
Flat coating	100	50
Floor coating	250	100
Flow coating	420	--- ¹
Form-release compound	250	250
Graphic arts coating (sign paint)	500	500
High temperature coating	420	420
Impacted immersion coating	780	780
Industrial maintenance coating ²	340	250
Industrial maintenance coating	340	250
Low solids coating	120	120
Magnesite cement coating	450	450

TABLE 1		
Coating Category	Phase I	Phase II
	manufactured prior to May 1, 2018 VOC content limit (g/L)	manufactured on or after May 1, 2018 VOC content limit (g/L)
Mastic texture coating	300	100
Metallic pigmented coating	500	500
Multi-color coating	250	250
Nonflat coating	150	100
Nonflat high gloss coating ²	250	150
Nuclear coating	450	450
Pre-treatment wash primer	420	420
Primer, sealer and undercoater	200	100
Quick-dry enamel	250	--- ¹
Quick-dry primer, sealer and undercoater	200	--- ¹
Reactive penetrating carbonate stone sealer ²	--- ¹	500
Reactive penetrating sealer ²	--- ¹	350
Recycled coating	250	250
Roof coating	250	250
Rust preventive coating ²	400	250
Shellac Clear	730	730
Shellac Opaque	550	550
Specialty primer, sealer and undercoater ²	350	100
Stain	250	250
Stone consolidant ²	--- ¹	450
Swimming pool coating	340	340
Thermoplastic rubber coating and mastic	550	550
Traffic marking coating	150	100
Traffic marking coating	150	100
Tub and tile refinish	--- ¹	420
Waterproofing membrane	--- ¹	250
Waterproofing sealer	250	--- ¹
Wood coating ²	--- ¹	275
Wood preservative	350	350
Zinc-rich primer ²	--- ¹	340

1 Classify as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥15 on an 85-degree meter and ≥5 on a 60-degree meter) – Nonflat Coating
- Registers gloss of ≥70 on a 60-degree meter – Nonflat-High Gloss Coating

2 Container must be appropriately labeled. See RCSA 22a-174-41a

3 “Clear Wood Coating – Lacquer” includes lacquer sanding sealer

4 “Clear Wood Coating - Sanding Sealer” does not include lacquer sanding sealer

-END-

**NOTICE TO CONTRACTOR - CONSTRUCTION CONTRACTOR
DIGITAL SUBMISSIONS**

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through a system of paperless electronic means as outlined in the special provision for Section 1.05 herein.

Shop drawings, working drawings, and product data shall be created, digitally signed and delivered by the Contractor in accordance with the Department's [Contractor Digital Submission Manual](#) (CDSM). Other deliverables that are required by other special provisions shall be similarly submitted.

Access credentials will be provided to the Contractor by the Department.

The Department will provide the Contractor with a list of email addresses that are to be used for each submittal type.

The Department shall not be held responsible for delays, lack of processing or response to submittals that do not follow the specified guidelines in the CDSM.

NOTICE TO CONTRACTOR - ELECTRONIC ENGINEERING DATA (EED)

The EED is an assembly of engineering data files that were used to produce the Contract plans.

Electronic Engineering Data (EED) is provided for information purposes only. In case of conflict between the EED and the Contract plans and specifications, the contract plans and specifications shall govern. The EED has been reviewed by the Department for quality control purposes, but it is the Contractor's responsibility to build the Project per the contract plans and specifications.

The EED is being provided to the Engineer for GPS/RTS inspection. The Contractor may use the EED to assist in bidding, layout and Automated Machine Control/Guidance.

The EED includes geospatially-correct 2D CAD files and may include horizontal and vertical alignment data files, 3D surface model files (break-line features and triangles) and a preference file. The data is being provided in two formats:

- Native Format
 - Bentley MicroStation CAD files (dgn)
 - Bentley SS2 InRoads Alignment Files (alg)
 - Bentley SS2 InRoads Digital Terrain Models (dtm)
 - Bentley SS2 InRoads Preference File (xin)

- Converted Format (for use in GPS/RTS Site equipment)
 - AutoCAD CAD files (dxf)
 - Alignment files (xml)
 - Surface Models (xml)

For a complete list of EED files, see the EED file manifest (PDF) located in the EED_0106-0127.zip file which is posted with the contract PS&E's on the State Contracting portal.

**NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS)
COORDINATES FOR SIGNS**

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new State owned and maintained signs. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to DOT-SignInventory@ct.gov. Refer to the special provision for Section 12.00 General Clauses For Highway Signing.

NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE STRENGTH

The concrete strength or allowable design stress specified in the General Notes is for design purposes only. The minimum compressive strength of concrete in constructed components shall comply with the requirements of Section 6.01 Concrete for Structures.

NOTICE TO CONTRACTOR – PRIORITY SCHEDULE ACTIVITIES

In order to assure the success of the project, it is suggested that the Contractor commence the following activities immediately upon receipt of formal Notice to Proceed:

Item #1301934A – 24” Steel Pipe Sleeve: Excavation of test pit to determine the existing end location and the outside diameter of the existing water main sleeve prior to submission of material shop drawings in order to obtain the necessary material for extension of the sleeve.

NOTICE TO CONTRACTOR - PROCUREMENT OF MATERIALS

Upon award, the Contractor shall proceed with shop drawings, working drawings, procurement of materials, and all other submittals required to complete the work in accordance with the contract documents.

NOTICE TO CONTRACTOR – UTILITY COORDINATION

The purpose of this notice is ensure coordination with utility companies and to summarize the Department's understanding of the adjustments and/or relocations of public utility facilities that are anticipated to be performed by the individual utility owners and/or their authorized contractors and subcontractors, as occasioned by the bridge rehabilitation provided for under this Contract.

The work summary herein is based on limited investigation and coordination between the State and the utility owners. It is not intended to serve as a detailed description of every aspect of the utility owner's operations, nor is this information guaranteed with respect to the timing or limits of the utility owner's work or the exact positioning of the adjusted and/or relocated plant. The Contractor is further advised that the utility work described below is not necessarily depicted in its entirety on the Contract plans.

The contents of this notice shall in no way relieve the Contractor of its responsibilities for cooperating and coordinating with utility owners, as specified elsewhere in the Contract, nor shall such contents serve as the basis for any claim against the Department. The Contractor shall allow access to representatives of the various utility companies as required for the utilities to complete their work and/or inspect their facilities.

The Contractor must comply with all details as specified in the contract plans and documents unless otherwise approved by the Engineer. The Contractor shall consider in their bid any inconvenience and/or work required to meet these conditions.

Underground Work by the Southern Connecticut Gas Company (SOCONNGC)

The Contractor is hereby notified that there is an existing 6" plastic high pressure gas main located in the eastbound outside shoulder of Route 34. This gas main shall remain in service at all times during the duration of the project. The Contractor shall coordinate all activities to ensure the gas main is not disturbed during the prosecution of construction work and shall give sufficient notification to the SOCONNGC to assure adequate lead time for SOCONNGC to mobilize their work forces associated with the permanent relocation of their facility into a 6" steel carrier pipe enclosed in a steel sleeve adjacent to the existing plastic main which is to be abandoned in place as shown on the plans and noted below.

During Stage 2, the Contractor shall allow SOCONNGC access to install the required relocated 6" gas main in the eastbound shoulder area of the Route 34 roadway.

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

The attached project specific utility work schedules were provided to the Connecticut Department of Transportation (Department) by the utility companies regarding their identified work on this project.

The utility scheduling information is provided to assist the Contractor in scheduling its activities. However, the Department does not ensure its accuracy and Section 1.05.06 of the Standard Specifications still is in force.

The utility scheduling information shall be incorporated into the Contractor's pre-award schedule in accordance with the Department's Bidding and Award Manual and Section 1.05.08 of the Contract.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to the Department in accordance with Section 1.05.08 of the Contract.

The Contractor shall incorporate the contemporaneous utility scheduling information into its baseline schedule submittal. The baseline schedule shall include Contractor predecessor and successor activities to the utility work in such detail as acceptable to the Engineer.

UTILITY WORK SCHEDULE Rev 08 02 2016	
CTDOT Project Number: 106-127	Town: Orange
Project Description: Rte. 34 over Wepawaug River	
CTDOT Utilities Engineer:	
Phone:	Email:
Utility Company: Souther Connecticut Gas	
Prepared By: Bruce Reynolds	Date Prepared: 10/12/2018
Phone: 203-795-7885	Email:
Scope of Work	
<p>The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.</p>	
<p>Install 50' of 6" Steel High Pressure Main with 10" Steel Sleeve.</p>	
Special Considerations and Constraints	
<p>The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..</p>	

UTILITY WORK SCHEDULE			
CTDOT Project Number:		106-127	
Utility Company:		Southern Connecticut Gas Co.	
Prepared By:		Bruce Reynolds	
			Total Calendar Days: 5
Schedule			
<p>The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of calendar days required to complete the utility work activity based on historical information and production rates.</p>			
Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (calendar days)
24+90-25+40	Install 6" steel high pressure main with 10" steel sleeve.	line & grade to be provided by contractor	2
18+40	6" main tie-in-remove and secure stop-offs	line & grade to be provided by contractor	1
16+60	6" main tie-in-remove and secure stop-offs	line & grade to be provided by contractor	1
24+90-25+40	abandon existing 6" pl-hp main	new 6" steel high pressure main installed	1

SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS

Article 1.02.04 – Examination of Plans, Specifications, Special Provisions and Site of Work:

Replace the third sentence of the last paragraph with:

The Department cannot ensure a response to inquiries received later than ten (10) days prior to the original scheduled opening of the related bid.

SECTION 1.03 - AWARD AND EXECUTION OF CONTRACT

Article 1.03.02 - Award and Execution of Contract:

After the second sentence of the only paragraph add the following:

The successful bidder is hereby notified of the Department's intent to award this Contract on or about April 19, 2019.

Article 1.03.08 - Notice to Proceed and Commencement of Work:

Change the first paragraph to read as follows:

The Contractor shall commence and proceed with the Contract work on the date specified in a written Notice to Proceed issued by the Engineer to the Contractor. The date specified will be no later than 45 calendar days after the date of the execution of the Contract by the Department, however, the Contractor is hereby put on notice that it is the Department's intent to issue the Notice to Proceed on or about May 20, 2019.

SECTION 1.05 - CONTROL OF THE WORK

Replace Article 1.05.02 with the following:

1.05.02—Contractor Submittals, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department's Action:

1. Contractor Submittals: The plans provided by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show the location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare working drawings, shop drawings or product data necessary to complete the Project.

The Contractor shall prepare submittals as Portable Document Format (PDF) files. The Contractor is also required to acquire, maintain access and use the Department's document management system for delivery of submittals. The format, digital signing requirements, delivery processes and document tracking procedures shall be performed in accordance with this specification and the [Contractor's Digital Submission Manual](#) (CDSM).

The submittals shall be sent to the Department's reviewer(s), sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods as specified herein (including any necessary revisions, resubmittal, and final review), and acquisition of materials, without causing a delay of the Project.

2. Working Drawings: When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the working drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The drawings shall be delivered sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods specified herein (including any necessary revisions, resubmittal, and final review).

There will be no direct payment for furnishing any working drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

a. Working Drawings for Permanent Construction: The Contractor shall supply to the Assistant District Engineer a certificate of insurance in accordance with 1.03.07 at the time that the working drawings for the Project are submitted.

The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of \$2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum \$250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at

least the deductible amount. The Contractor's designer shall obtain the appropriate and proper endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of

- (i) 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or
- (ii) 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.

b. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Assistant District Engineer.

3. Shop Drawings: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver shop drawings to the Designer for review. Review timeframes and submission locations are as specified herein.

There will be no direct payment for furnishing any shop drawings, but the cost thereof shall be considered as included in the general cost of the work.

4. Product Data: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver product data.

The Contractor shall submit the product data in a single submittal for each element or group of elements of construction.

The Contractor shall mark each copy of the product data submittal to show applicable choices and options. Where product data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer's printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

There will be no direct payment for furnishing any product data, but the cost thereof shall be considered as included in the general cost of the work.

5. Submittal Preparation and Processing – Review Timeframes: The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department's reviewer. For any submittals marked with "Revise and Resubmit" or "Rejected," the Department is allowed an additional 20 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor's failure to transmit submittals sufficiently in advance of the work to permit processing.

The furnishing of shop drawings, working drawings or product data, or any comments or suggestions by the Designer or Engineer concerning shop drawings, working drawings or product data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the shop drawings, working drawings and product data shall not serve to relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

6. Department's Action: The Designer or Engineer will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked "No Exceptions Noted" or "Exceptions as Noted" by the Designer or Engineer. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

- a. If submittals are marked "No Exceptions Noted," the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer's written warranty in compliance with the Contract provisions.
- b. If submittals are marked "Exceptions as Noted" the considerations or changes noted by the Department's Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Designer or Engineer if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.
- c. If submittals are marked "Revise and Resubmit," the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.
- d. If submittals are marked "Rejected," the Contractor shall prepare and submit a new submittal in accordance with the Designer's or Engineer's notations. The resubmissions require an additional review and determination by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Article 1.07.10 - Contractor's Duty to Indemnify the State against Claims for Injury or Damage:

Add the following after the only paragraph:

“It is further understood and agreed by the parties hereto, that the Contractor shall not use the defense of Sovereign Immunity in the adjustment of claims or in the defense of any suit, including any suit between the State and the Contractor, unless requested to do so by the State.”

Article 1.07.11 Opening of Section of project to Traffic or Occupancy:

Add the following sentence to the last paragraph;

“In cases in which guiderail is damaged by the traveling public, repair or replacement will be reimbursable as contained elsewhere herein.”

Article 1.07.13 – Contractor's Responsibility for Adjacent Property, Facilities and Services is supplemented as follows:

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Mr. Gerard McDonald
District 3 Electrical Supervisor
Department of Transportation
Milford, Connecticut
(203) 882-2033

Mr. Kevin Gerety, P.E.
Engineering Manager
The Southern Connecticut Gas Company
60 Marsh Hill Road
Orange, Connecticut 06477
(203) 795-7767
KGerety@soconngas.com

Mr. Lawrence J. Marcik, Jr., P.E.
Project Engineer
South Central Connecticut Regional Water Authority
90 Sargent Drive
New Haven, CT 06511-5966
(203) 401-6709
lmarcik@rwater.com

All work shall be in conformance with Rules and Regulations of Public Utility Regulatory Authority (PURA) concerning Traffic Signals attached to Public Service Company Poles.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

Route 34

Monday through Thursday between 6:00 a.m. and 9:00 a.m. & between 2:00 p.m. and 7:00 p.m.
Friday between 6:00 a.m. and 7:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

The Contractor shall be permitted to implement pre-stage work to reconstruct the existing outside shoulder areas as well as Stage 1B and Stage 1C during weekend hours only, defined as the 56 consecutive hours between 9 p.m. Friday and 5 a.m. of the next successive Monday. The Contractor shall also be permitted to complete Stage 1B and Stage 1C concurrently.

Ramps and Turning Roadways

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

Mapledale Road

As noted on the contract drawings, the Contractor shall prohibit left turns in and out of Mapledale Road for the duration of the project.

All Other Roadways

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

Additional Lane Closure Restrictions

It is anticipated that work on adjacent projects will be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate that coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been

coordinated and are acceptable to the Engineer. The one mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

SECTION 2.86 - DRAINAGE TRENCH EXCAVATION, ROCK IN DRAINAGE TRENCH EXCAVATION

2.86.01—Description

2.86.03—Construction Methods

2.86.04—Method of Measurement

2.86.05—Basis of Payment

2.86.01—Description: Drainage trench excavation consists of the excavation necessary for the proper installation of drainage structures, pipes, pipe ends and any other incidental drainage items.

It shall include earth and rock excavation, removal of existing pipes, dewatering, backfill, and disposal of materials; to the trench limits described herein, to the dimensions shown on the plans, or as directed by the Engineer.

Classifications:

- (1) **Drainage Trench Excavation** will include only the excavation necessary for the construction of the drainage items and the removals specified above.
- (2) **Rock in Drainage Trench Excavation**, insofar as it applies to drainage trench excavation, shall be defined as **1/2 cubic yard or more** in volume of the following obstructions removed from the limits of the drainage trench:
 - (a) rock in definite ledge formation
 - (b) boulders, or portions of boulders
 - (c) cement masonry structures
 - (d) concrete or reinforced concrete structures
 - (e) reinforced concrete pipe
 - (f) subsurface concrete pavement or concrete base

The removal shall be as indicated or directed from within the limits defined in 2.86.03 for drainage trench excavation.

2.86.03—Construction Methods:

(1) Drainage Trench Excavation Limits:

Horizontal Limits: Trench widths for pipes, pipe ends, pipe-arches, and drainage structures shall be as follows:

- (a) 2 feet greater than the nominal inside diameter of circular pipe or nominal inside span of elliptical pipe or pipe-arch for such diameters or spans of less than 30 inches
- (b) 3 feet greater than the nominal inside diameter of circular pipe or the nominal inside span of elliptical pipe or pipe-arch for such diameters or spans that are 30 inches or greater
- (c) 4 feet greater than the nominal inside diameter or nominal horizontal inside span for pipe-arches fabricated from structural plates

- (d) 2 feet beyond the neat lines of all exterior or foundation walls of drainage structures

Vertical Limits: Trench depths shall extend vertically as follows:

- (a) From the bottom of the trench to the bottom of the roadway excavation, or in areas away from roadway excavation, to the top of existing ground surface.
- (b) Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

- (2) **Drainage Trench Excavation:** Drainage trench excavation shall be made in conformity with the requirements of the plans, or as directed by the Engineer. The Contractor shall furnish and employ such shores, braces, pumps, or ancillary equipment as needed for the proper protection of property, proper completion of the work, as well as safety of the public and employees of both the Contractor and the Department. All bracing and shoring shall be removed when no longer required for the construction or safety of the work. When required, the Contractor shall provide or have on the Site at all times any OSHA certification for equipment to be used, per 1.07.07. For support of trenches greater than 10 feet in depth, working drawings shall be submitted, in accordance with 1.05.02. The Contractor shall control erosion and sedimentation at trench locations and ensure that pumped water from the drainage excavation is discharged in accordance with the requirements of 1.10.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved backfill, thoroughly compacted in lifts not to exceed 6 inches, for the full trench width. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

After the excavation is complete, the Contractor shall notify the Engineer and no drainage structure or material shall be placed in the excavated area until the Engineer has approved the depth of excavation and the character of the foundation material.

- (3) **Rock in Drainage Trench Excavation:**

- (a) Rock in Drainage Trench Excavation - Ledge: When rock in definite ledge form is encountered, the Contractor shall excavate a minimum of 12 inches below the bottom of the proposed pipe or drainage structure; and this depth shall be filled with bedding material (as specified in M.08.03-1) below the proposed pipe; or granular fill (as specified in M.02.01) below the proposed drainage structure, which shall be thoroughly compacted in lifts not to exceed 6 inches.
- (b) Rock in Drainage Trench Excavation - Boulders: When boulders are encountered, the Contractor shall remove them from the trench and if backfill is required, the void shall be filled with bedding material, surplus excavated material (as specified in 2.02.03-8) or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(c) **Rock in Drainage Trench Excavation –Structures:** When cement masonry, concrete or reinforced concrete structures are encountered within the drainage trench limits, the Contractor shall remove the structure in its entirety or as directed by the Engineer, and if backfill is required, the void shall be filled with bedding material, surplus excavated material or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(4) **Backfill:** Suitable material excavated from the drainage trench shall be used as backfill material prior to consideration of using any other source of backfill. Backfill material used shall be of a quality satisfactory to the Engineer and shall be free from large or frozen lumps, wood and other extraneous material. Rock fill or stones larger than 5 inches shall not be placed within 1 foot of the drainage structure or pipe. The grading shall be completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material, placed in layers not to exceed 6 inches in depth after compaction, which shall be thoroughly compacted with equipment approved by the Engineer.

All surplus or unsuitable material shall be removed and disposed of as directed. Should additional material be required for backfilling, it may be obtained from the Project surplus excavation in accordance with 2.02.03-8 or from borrow pits, gravel pits, or elsewhere as directed by the Engineer.

2.86.04—Method of Measurement:

Drainage Trench Excavation: Drainage trench excavation will not be measured for payment. If granular fill or borrow is required to replace unsuitable material it will be measured for payment as directed by the Engineer.

Rock in Drainage Trench Excavation: If any material meeting the definition of Rock in Drainage Trench Excavation is encountered, the Contractor shall strip it of sufficient overlying material to allow for proper measurement and shall then notify the Engineer that the rock surface is ready for measurement. If the Contractor fails to give such notice, the Engineer will presume that the measurements taken at the time the Engineer first saw the material in question will give the true quantity of excavation.

Rock in Drainage Trench Excavation will be measured according to the classification provided in 2.86.01 and within the drainage trench excavation limits provided in 2.86.03.

For the removal of underground obstructions, as classified in 2.86.01-2, the measurement shall be the actual volume of rock removed (1/2 cubic yard or more) as approved by the Engineer.

Rock in Drainage Trench Excavation will not be measured for payment in fills.

Bedding Material or other suitable fill, as specified in 2.86.03(3), used to fill voids after rock is excavated will not be measured for payment.

2.86.05—Basis of Payment:

Drainage Trench Excavation: There will be no direct payment for drainage trench excavation required for the installation of drainage pipes, pipe ends, catch basins, drop inlets, manholes, and other drainage structures, or any other incidental drainage work including materials, tools, equipment and labor necessary to complete the drainage trench excavation in conformity with the plans or as directed by the Engineer.

There will be no direct payment for backfill or disposal of surplus material necessary for the satisfactory completion of this work.

There will be no direct payment made for shoring, bracing, dewatering, or for material or equipment necessary for the satisfactory completion of the work.

Where called for on the plans to install temporary earth retaining systems for the support of existing facilities, pavement, utilities, or for other constraints, payment will be made in accordance with such items in the Contract.

If granular fill or borrow is used to replace unsuitable material, payment will be made at the respective Contract unit prices, or in the absence of such items in the Contract, as Extra Work in accordance with 1.04.05.

Rock in Drainage Trench Excavation: When rock, conforming to the description in 2.86.01 is encountered within the limits of drainage trench excavation, its removal will be classified and paid for at the Contract unit price per cubic yard for "Rock in Drainage Trench Excavation 0' – 10' Deep," or "Rock in Drainage Trench Excavation 0' – 20' Deep," as the case may be.

Those portions of drainage trench excavation classified and paid for as "Rock in Drainage Trench Excavation" of the various depths will be the actual volumes of rock excavated within the limits for drainage trench excavation, at the applicable bottom depth price.

Where no item or items for "Rock in Drainage Trench Excavation" at the applicable depth appear in the proposal and rock is encountered in drainage trench excavation, its removal will be paid for as Extra Work in accordance with 1.04.05.

When excavation is necessary in fill, no such excavation will be paid for as "Rock in Drainage Trench Excavation."

When excavation is necessary for any purpose other than drainage-related items, no such excavation will be paid under this item.

Bedding material or any other suitable material used to fill voids vacated by excavated rock will not be paid for but shall be included in the unit price per cubic yard for "Rock in Drainage Trench Excavation."

Pay Item	Pay Unit
Rock in Drainage Trench Excavation 0' - 10' Deep	c.y.
Rock in Drainage Trench Excavation 0' - 20' Deep	c.y.

SECTION 4.06 - BITUMINOUS CONCRETE

Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description

4.06.02—Materials

4.06.03—Construction Methods

- 1. Material Documentation**
- 2. Transportation of Mixture**
- 3. Paving Equipment**
- 4. Test Section**
- 5. Transitions for Roadway Surface**
- 6. Spreading and Finishing of Mixture**
- 7. Longitudinal Joint Construction Methods**
- 8. Contractor Quality Control (QC) Requirements**
- 9. Temperature and Seasonal Requirements**
- 10. Field Density**
- 11. Acceptance Sampling and Testing**
- 12. Density Dispute Resolution Process**
- 13. Corrective Work Procedure**
- 14. Protection of the Work**
- 15. Cut Bituminous Concrete Pavement**

4.06.04—Method of Measurement

4.06.05—Basis of Payment

4.06.01—Description: Work under this Section shall include the production, delivery, placement and compaction of a uniform textured, non-segregated, smooth bituminous concrete pavement to the grade and cross section shown on the plans.

The following terms as used in this specification are defined as:

Bituminous Concrete: A composite material consisting of prescribed amounts of asphalt binder and aggregates. Asphalt binder may also contain additives engineered to modify specific properties and/or behavior of the composite material. References to bituminous concrete apply to all of its forms, such as those identified as hot-mix asphalt (HMA) or polymer-modified asphalt (PMA).

Bituminous Concrete Plant (Plant): A structure where aggregates and asphalt binder are combined in a controlled fashion into a bituminous concrete mixture suitable for forming pavements and other paved surfaces.

Course: A continuous layer (a lift or multiple lifts) of the same bituminous concrete mixture placed as part of the pavement structure.

Density Lot: The total tonnage of all bituminous concrete placed in a single lift which are:

PWL density lots = When the project total estimated quantity per mixture is larger than 3,500 tons

Simple Average density lots = When the project total estimated quantity per mixture is 3,500 tons or less

Disintegration: Erosion or fragmentation of the pavement surface which can be described as polishing, weathering-oxidizing, scaling, spalling, raveling, or formation of potholes.

Dispute Resolution: A procedure used to resolve conflicts between the Engineer and the Contractor's results that may affect payment.

Hot Mix Asphalt (HMA): A bituminous concrete mixture typically produced at 325°F.

Job Mix Formula (JMF): A recommended aggregate gradation and asphalt binder content to achieve the required mixture properties.

Lift: An application of a bituminous concrete mixture placed and compacted to a specified thickness in a single paver pass.

Percent Within Limits (PWL): The percentage of the lot falling between the Upper Specification Limit (USL) and the Lower Specification Limit (LSL).

Polymer Modified Asphalt (PMA): A bituminous concrete mixture containing a polymer-modified asphalt binder and using a qualified warm mix technology.

Production Lot: The total tonnage of a bituminous concrete mixture from a single source that may receive an adjustment.

Production Sub Lot: Portion of the production lot typically represented by a single sample.

Quality Assurance (QA): All those planned and systematic actions necessary to provide CTDOT the confidence that a Contractor will perform the work as specified in the Contract.

Quality Control (QC): The sum total of activities performed by the vendor (Producer, Manufacturer, and Contractor) to ensure that a product meets contract specification requirements.

Superpave: A bituminous concrete mix design used in mixtures designated as "S*" Where "S" indicates Superpave and * indicates the sieve related to the nominal maximum aggregate size of the mix.

Segregation: A non-uniform distribution of a bituminous concrete mixture in terms of gradation, temperature, or volumetric properties.

Warm Mix Asphalt (WMA) Technology: A qualified additive or technology that may be used to produce a bituminous concrete at reduced temperatures and/or increase workability of the mixture.

4.06.02—Materials: All materials shall meet the requirements of Section M.04.

1. **Materials Supply:** The bituminous concrete mixture must be from one source of supply and originate from one Plant unless authorized by the Engineer.
2. **Recycled Materials:** Reclaimed Asphalt Pavement (RAP), Crushed Recycled Container Glass (CRCG), Recycled Asphalt Shingles (RAS), or crumb rubber (CR) from recycled tires may be incorporated in bituminous concrete mixtures in accordance with Project Specifications.

4.06.03—Construction Methods

1. **Material Documentation:** All vendors producing bituminous concrete must have Plants with automated vehicle-weighing scales, storage scales, and material feeds capable of producing a delivery ticket containing the information below.
 - a. State of Connecticut printed on ticket.
 - b. Name of Producer, identification of Plant, and specific storage silo if used.
 - c. Date and time.
 - d. Mixture Designation, mix type and level. Curb mixtures for machine-placed curbing must state "curb mix only."
 - e. If WMA Technology is used, "-W" must be listed following the mixture designation.
 - f. Net weight of mixture loaded into the vehicle. (When RAP and/or RAS is used, the moisture content shall be excluded from mixture net weight.)
 - g. Gross weight (equal to the net weight plus the tare weight or the loaded scale weight).
 - h. Tare weight of vehicle (daily scale weight of the empty vehicle).
 - i. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
 - j. Vehicle number - unique means of identification of vehicle.
 - k. For Batch Plants: individual aggregate, recycled materials, and virgin asphalt max/target/min weights when silos are not used.
 - l. For every mixture designation: the running daily and project total delivered and sequential load number.

The net weight of mixture loaded into the vehicle must be equal to the cumulative measured weights of its components.

The Contractor must notify the Engineer immediately if, during production, there is a malfunction of the weight recording system in the automated Plant. Manually written tickets containing all required information will be allowed for no more than 1 hour.

The State reserves the right to have an Inspector present to monitor batching and/or weighing

operations.

- 2. Transportation of Mixture:** The mixture shall be transported in vehicles that are clean of all foreign material, excessive coating or cleaning agents, and that have no gaps through which material might spill. Any material spilled during the loading or transportation process shall be quantified by re-weighing the vehicle. The Contractor shall load vehicles uniformly so that segregation is minimized. Loaded vehicles shall be tightly covered with waterproof covers acceptable to the Engineer. Mesh covers are prohibited. The cover must minimize air infiltration. Vehicles found not to be in conformance shall not be loaded.

Vehicles with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list and allowable weights of all vehicles transporting mixture. The State reserves the right to check the gross and tare weight of any vehicle. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4%, the Engineer will recalculate the net weight. The Contractor shall correct the discrepancy to the satisfaction of the Engineer.

If a vehicle delivers mixture to the Project and the delivery ticket indicates that the vehicle is overweight, the load may not be rejected but a “Measured Weight Adjustment” will be taken in accordance with Article 4.06.04.

Vehicle body coating and cleaning agents must not have a deleterious effect on the mixture. The use of solvents or fuel oil, in any concentration, is prohibited for the coating of vehicle bodies.

For each delivery, the Engineer shall be provided a clear, legible copy of the delivery ticket.

- 3. Paving Equipment:** The Contractor shall have the necessary paving and compaction equipment at the Project Site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective, or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, etc.).

Refueling or cleaning of equipment is prohibited in any location on the Project where fuel or solvents might come in contact with paved areas or areas to be paved. Solvents used in cleaning mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off of areas paved or to be paved.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible

screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Engineer. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam (minimum length 20 feet).

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel wheeled, pneumatic, or a combination thereof. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination. Vibratory rollers shall be equipped with indicators for amplitude, frequency, and speed settings/readouts to measure the impacts per foot during the compaction process. Oscillatory rollers shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 psi uniformly over the surface. The Contractor shall furnish documentation to the Engineer regarding tire size, pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations which will be performed during hours of darkness the paving equipment shall be equipped with lighting fixtures as described below or with an approved equal. Lighting shall minimize glare to passing traffic. The lighting options and minimum number of fixtures are listed in Tables 4.06-1 and 4.06-2.

TABLE 4.06-1: Minimum Paver lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type A	3	Mount over screed area
	Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
	Type B (wide) or Type C (flood)	2	Aim 25 feet behind paving machine
2	Type D Balloon	2	Mount over screed area

TABLE 4.06-2: Minimum Roller Lighting

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type B (wide)	2	Aim 50 feet in front of and behind roller
	Type B (narrow)	2	Aim 100 feet in front of and behind roller
2	Type C (flood)	2	Aim 50 feet in front of and behind roller
	Type C (spot)	2	Aim 100 feet in front of and behind roller
3	Type D Balloon	1	Mount above the roller

*All fixtures shall be mounted above the roller.

Type A: Fluorescent fixture shall be heavy duty industrial type. Each fixture shall have a minimum output of 8,000 lumens. The fixtures shall be mounted horizontally and be designed for continuous row installation.

Type B: Each floodlight fixture shall have a minimum output of 18,000 lumens.

Type C: Each fixture shall have a minimum output of 19,000 lumens.

Type D: Balloon light – each balloon light fixture shall have minimum output of 50,000 lumens and emit light equally in all directions.

Material Transfer Vehicle (MTV): A MTV shall be used when placing bituminous concrete surface course (a lift or multiple lifts) as indicated in the Contract except as noted on the plans or as directed by the Engineer. In addition, continuous paving lengths of less than 500 feet may not require the use of a MTV as determined by the Engineer.

The MTV must be a vehicle specifically designed for the purpose of delivering the bituminous concrete mixture from the delivery vehicle to the paver. The MTV must continuously remix the bituminous concrete mixture throughout the placement process.

The use of a MTV will be subject to the requirements stated in Article 1.07.05 Load Restrictions. The Engineer may limit the use of the vehicle if it is determined that the use of the MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Engineer at time of pre-construction the following information:

1. The make and model of the MTV.
2. The individual axle weights and axle spacing for each piece of paving equipment (haul vehicle, MTV and paver).
3. A working drawing showing the axle spacing in combination with all pieces of equipment that will comprise the paving echelon.
4. **Test Section:** The Engineer may require the Contractor to place a test section whenever the requirements of this specification or Section M.04 are not met.

The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and approval by the Engineer. The same equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, Plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Engineer, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Article 1.06.04.

5. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall meet the criteria below unless otherwise specified.

Permanent Transitions: Defined as any gradual change in pavement elevation that remains as a permanent part of the work.

A transition shall be constructed no closer than 75 feet from either side of a bridge expansion joint or parapet. All permanent transitions, leading and trailing ends shall meet the following length requirements:

Posted Speed Limit	Permanent Transition Length Required
> 35 mph	30 feet per inch of elevation change
35 mph or less	15 feet per inch of elevation change

In areas where it is impractical to use the above-described permanent transition lengths, the use of a shorter permanent transition length may be permitted when approved by the Engineer.

Temporary Transitions: Defined as a transition that does not remain a permanent part of the work.

All temporary transitions shall meet the following length requirements:

Posted Speed Limit	Temporary Transition Length Required
> 50 mph	Leading Transition: 15 feet per inch of vertical change (thickness) Trailing Transition: 6 feet per inch of vertical change (thickness)
40, 45 or 50 mph	Leading and Trailing: 4 feet per inch of vertical change (thickness)
35 mph or less	Leading and Trailing: 3 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in place over the winter shutdown period or during extended periods of inactivity (more than 14 calendar days) shall meet the greater than 50 mph requirements shown above.

6. Spreading and Finishing of Mixture: Prior to the placement of the mixture, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance.

Immediately before placing a bituminous concrete lift, a uniform coating of tack coat shall be applied to all existing underlying pavement surfaces and on the exposed surface of a wedge joint. Such surfaces shall be clean and dry. Sweeping or other means acceptable to the Engineer shall be used.

The mixture shall not be placed whenever the surface is wet or frozen.

Tack Coat Application: The tack coat shall be applied by a pressurized spray system that

results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gal./s.y. for a non-milled surface and an application rate of 0.05 to 0.07 gal./s.y. for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gal /s.y. The Engineer must approve the equipment and the method of measurement prior to use. The material for tack coat shall be heated to 160°F ± 10°F and shall not be further diluted.

Tack coat shall be allowed sufficient time to break prior to any paving equipment or haul vehicles driving on it.

The Contractor may request to omit the tack coat application between bituminous concrete layers that have not been exposed to traffic and are placed during the same work shift. Requests to omit tack coat application on the upper and lower surfaces of a wedge joint will not be considered.

Placement: The mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications.

When unforeseen weather conditions prevent further placement of the mixture, the Engineer is not obligated to accept or place the bituminous concrete mixture that is in transit from the Plant.

In advance of paving, traffic control requirements shall be set up, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The mixture temperature will be verified by means of a probe or infrared type of thermometer. The placement temperature range shall be listed in the quality control plan (QCP) for placement and meet the requirements of Table M.04.03-4. Any HMA material that falls outside the specified temperature range as measured by a probe thermometer may be rejected.

The Contractor shall inspect the newly placed pavement for defects in mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Engineer.

Where it is impracticable due to physical limitations to operate the paving equipment, the Engineer may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of bituminous concrete placed at a specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an adjustment or removal. Lift tolerances will not relieve the Contractor from

meeting the final designed grade. Lifts of specified non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

- a) Thickness: Where the average thickness of the lift exceeds that shown on the plans beyond the tolerances shown in Table 4.06-3, the Engineer will calculate the thickness adjustment in accordance with Article 4.06.04.

TABLE 4.06-3: Thickness Tolerances

Mixture Designation	Lift Tolerance
S1	+/- 3/8 inch
S0.25, S0.375, S0.5	+/- 1/4 inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, with the approval of the Engineer, shall take corrective action in accordance with this Section.

- b) Area: Where the width of the lift exceeds that shown on the plans by more than the specified thickness, the Engineer will calculate the area adjustment in Article 4.06.04.
- c) Delivered Weight of Mixture: When the delivery ticket shows that the truck exceeds the allowable gross weight for the vehicle type, the Engineer will calculate the weight adjustment in accordance with Article 4.06.04.

Transverse Joints: All transverse joints shall be formed by saw-cutting to expose the full thickness of the lift. Tack coat shall be applied to the sawn face immediately prior to additional mixture being placed.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Article 4.06.04 and eliminate all roller marks without displacement, shoving cracking, or aggregate breakage.

When placing a lift with a specified thickness less than 1 1/2 inches, or a wedge course, the Contractor shall provide a minimum rolling pattern as determined by the development of a compaction curve. The procedure to be used shall be documented in the Contractor’s QCP for placement and demonstrated on the first day of placement.

The use of the vibratory system on concrete structures is prohibited. When approved by the Engineer, the Contractor may operate a roller using an oscillatory system at the lowest frequency setting.

If the Engineer determines that the use of compaction equipment in the dynamic mode may damage highway components, utilities or adjacent property, the Contractor shall provide alternate compaction equipment.

Rollers operating in the dynamic mode shall be shut off when changing directions.

These allowances will not relieve the Contractor from meeting pavement compaction requirements.

Surface Requirements:

Each lift of the surface course shall not vary more than 1/4 inch from a Contractor-supplied 10 foot straightedge. For all other lifts of bituminous concrete, the tolerance shall be 3/8 inch. Such tolerance will apply to all paved areas.

Any surface that exceeds these tolerances shall be corrected by the Contractor at its own expense.

7. Longitudinal Joint Construction Methods: The Contractor shall use Method I - Notched Wedge Joint (see Figure 4.06-1) when constructing longitudinal joints where lift thicknesses are 1 ½ inches to 3 inches. S1.0 mixtures shall be excluded from using Method I. Method II - Butt Joint (see Figure 4.06-2) shall be used for lifts less than 1 1/2 inches or greater than 3 inches. Each longitudinal joint shall maintain a consistent offset from the centerline of the roadway along its entire length. The difference in elevation between the two faces of any completed longitudinal joint shall not exceed 1/4 inch at any location.

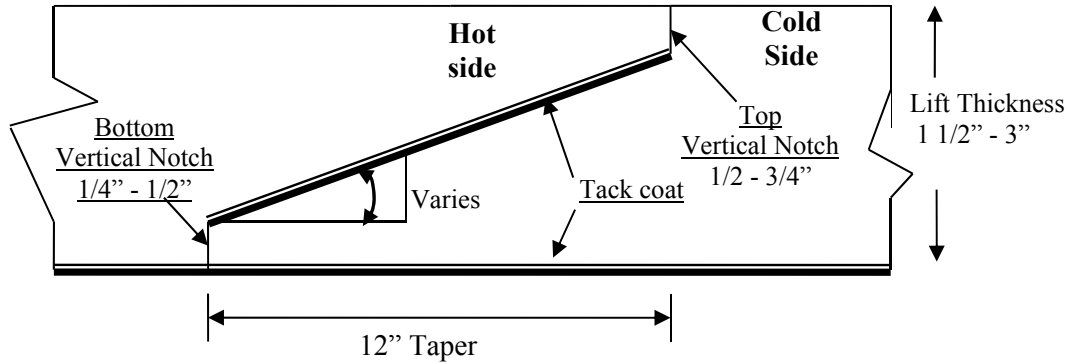
Method I - Notched Wedge Joint:

A notched wedge joint shall be constructed as shown in Figure 4.06-1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches. The device shall have an integrated vibratory system. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width “curb to curb” as described in Method II may be waived if addressed in the QC plan and approved by the Engineer.

The taper portion of the wedge joint shall be evenly compacted using equipment other than the paver or notch wedge joint device. The compaction device shall be the same width as the taper and not reduce the angle of the wedge or ravel the top notch of the joint during compaction.

When placed on paved surfaces, the area below the sloped section of the joint shall be treated with tack coat. The top surface of the sloped section of the joint shall be treated with tack coat prior to placing the completing pass.

The taper portion of the wedge joint shall not be exposed to traffic for more than 5 calendar days.

Figure 4.06-1: Notched Wedge Joint (Not to Scale)

Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

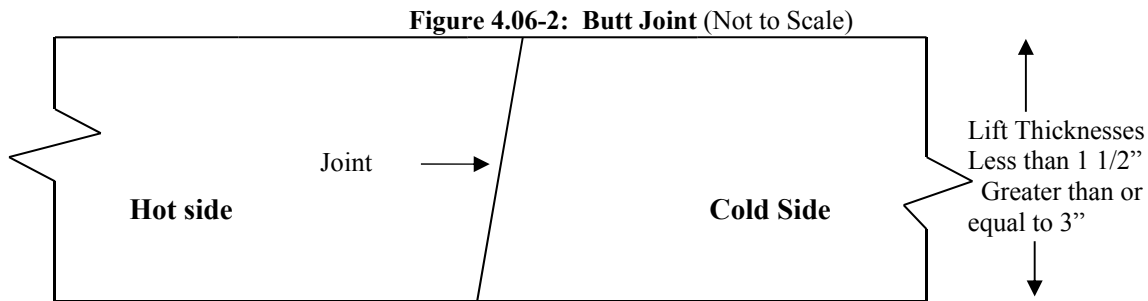
The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

If Method I cannot be used on those lifts which are 1 ½ inches to 3 inches, Method III may be substituted according to the requirements below for “Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment.”

Method II - Butt Joint:

When adjoining passes are placed, the Contractor shall use the end gate to create a near vertical edge (refer to Figure 4.06-2). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). During placement of multiple lifts, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inch from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines. The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

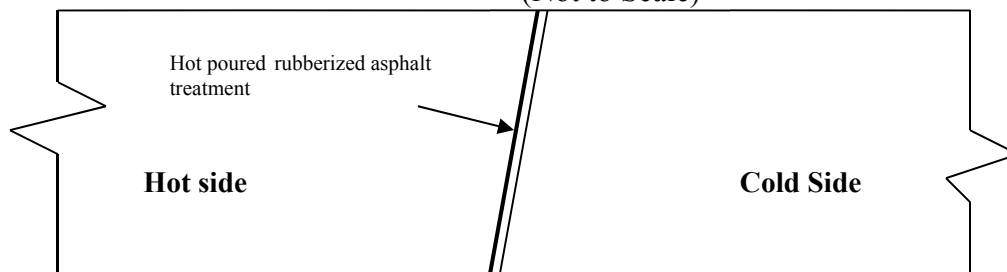
The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Engineer. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width “curb to curb.”



Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment:

If Method I cannot be used due to physical constraints in certain limited locations, the Contractor may submit a request in writing for approval by the Engineer to use Method III as a substitution in those locations. There shall be no additional measurement or payment made when Method III is substituted for Method I. When required by the Contract or approved by the Engineer, Method III (see Figure 4.06-3) shall be used.

Figure 4.06-3: Butt Joint with Hot Poured Rubberized Asphalt Treatment (Not to Scale)



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a rubberized joint seal material meeting the requirements of ASTM D6690, Type 2. The joint sealant shall be placed on the face of the “cold side” of the butt joint as shown above prior to placing the “hot side” of the butt joint. The joint seal material shall be applied in accordance with the manufacturer’s recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

8. Contractor Quality Control (QC) Requirements: The Contractor shall be responsible for maintaining adequate quality control procedures throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture, and work provided by Subcontractors, Suppliers, and Producers also meet Contract specification requirements.

This effort must be documented in Quality Control Plans (QCP) and must address the actions, inspection, or sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation in a timely fashion.

The Standard QCP for production shall consist of the quality control program specific to the production facility.

There are 3 components to the QCP for placement: a Standard QCP, a Project Summary Sheet that details Project-specific information, and, if applicable, a separate Extended Season Paving Plan as required in 4.06.03-9 “Temperature and Seasonal Requirements.”

The Standard QCP for both production and placement shall be submitted to the Department for approval each calendar year and at a minimum of 30 days prior to production or placement.

Production or placement shall not occur until all QCP components have been approved by the Engineer.

Each QCP shall include the name and qualifications of a Quality Control Manager (QCM). The QCM shall be responsible for the administration of the QCP, and any modifications that may become necessary.

The QCM shall have the ability to direct all Contractor personnel on the Project during paving operations.

The QCPs shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QC Technician performing in-place density testing shall be NETTCP certified as a paving inspector.

Approval of the QCP does not relieve the Contractor of its responsibility to comply with the Project specifications. The Contractor may modify the QCPs as work progresses and must document the changes in writing prior to resuming operations. These changes include but are not limited to changes in quality control procedures or personnel. The Department reserves the right to deny significant changes to the QCPs.

QCP for Production: Refer to M.04.03-1.

QCP for Placement: The Standard QCP, Project Summary Sheet, and Extended Season Paving Plan shall conform to the format provided by the Engineer. The format is available at http://www.ct.gov/dot/lib/dot/documents/dconstruction/pat/qcp_outline_hma_placement.pdf

The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete placement conforms to the requirements as outlined in its QCP during all phases of the work. The Contractor shall document these activities for each day of placement.

The Contractor shall submit complete field density testing and inspection records to the Engineer within 48 hours in a manner acceptable to the Engineer.

The Contractor may obtain 1 mat core and 1 joint core per day for process control, provided this process is detailed in the QCP. The results of these process control cores shall not be used to

dispute the Department's determinations from the acceptance cores. The Contractor shall submit the location of each process control core to the Engineer for approval prior to taking the core. The core holes shall be filled to the same requirements described in Subarticle 4.06.03-10.

9. Temperature and Seasonal Requirements: Paving, including placement of temporary pavements, shall be divided into 2 seasons, "In-Season" and "Extended-Season." In-Season paving occurs from May 1 to October 14, and Extended Season paving occurs from October 15 to April 30. The following requirements shall apply unless otherwise authorized or directed by the Engineer:

- Mixtures shall not be placed when the air or subbase temperature is less than 40°F regardless of the season.
- Should paving operations be scheduled during the Extended Season, the Contractor must submit an Extended Season Paving Plan for the Project that addresses minimum delivered mix temperature considering WMA, PMA, or other additives; maximum paver speed; enhanced rolling patterns; and the method to balance mixture delivery and placement operations. Paving during Extended Season shall not commence until the Engineer has approved the plan.

10. Field Density The Contractor shall obtain cores for the determination of mat and longitudinal joint density of bituminous concrete pavements. Within five calendar days of placement, mat and joint cores shall be extracted on each lift with a specified thickness of 1 1/2 inches or more. Joint cores shall not be extracted on HMA S1.0 lifts.

The Contractor shall extract cores from random locations determined by the Engineer in accordance with ASTM D3665. Four (4) or six (6) inch diameter cores shall be extracted for S0.25, S0.375 and S0.5 mixtures; 6 inch diameter cores shall be required for S1.0 mixtures. The Contractor shall coordinate with the Engineer to witness the extraction, labeling of cores, and filling of the core holes.

Each lift will be separated into lots as follows:

- a. Simple Average Density Lots: For total estimated quantities below 2,000 tons, the lift will be evaluated in one lot which will include the total paved tonnage of the lift and all longitudinal joints between the curb lines.
For total estimated quantities between 2,000 and 3,500 tons, the lift will be evaluated in two lots in which each lot will include approximately half of the total tonnage placed for the full paving width of a lift including all longitudinal joints between the curb lines.
- b. PWL Density Lots: Mat density lots will include each 3,500 tons of mixture placed within 30 calendar days. Joint density lots will include 14,000 linear feet of constructed joints. Bridge density lots will always be analyzed using simple average lot methodology.
- c. Partial Density Lot (For PWL only): A mat density lot with less than 3,500 tons or a joint density lot with less than 14,000 linear feet due to:
 - completion of the course; or
 - a lot spanning 30 calendar days.

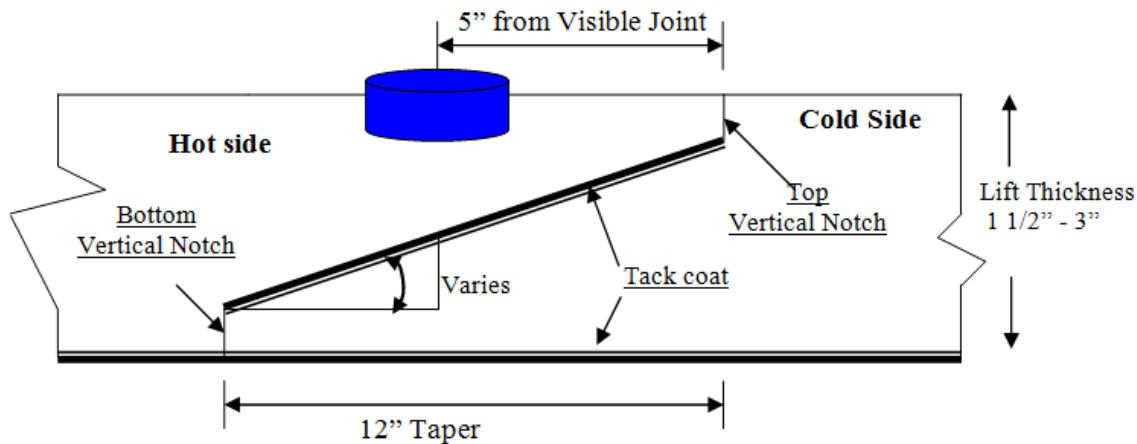
Prior to paving, the type and number of lot(s) will be determined by the Engineer. Noncontiguous areas such as highway ramps may be combined to create one lot.

After the lift has been compacted and cooled, the Contractor shall cut cores to a depth equal to or greater than the lift thickness and shall remove them without damaging the lift(s) to be tested. Any core that is damaged or obviously defective while being obtained will be replaced with a new core from a location within 2 feet measured in a longitudinal direction.

A mat core shall not be located any closer than 1 foot from the edge of a paver pass. If a random number locates a core less than 1 foot from any edge, the location will be adjusted by the Engineer so that the outer edge of the core is 1 foot from the edge of the paver pass.

Method I, Notched Wedge Joint cores shall be taken so that the center of the core is 5 inches from the visible joint on the hot mat side (Figure 4.06-4).

Figure 4.06-4: Notched Wedge Joint Cores (Not to Scale)

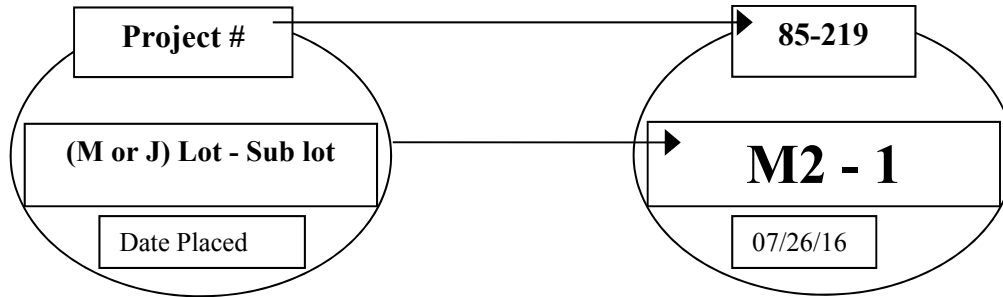


When Method II or Method III Butt Joint is used, cores shall be taken from the hot side so the edge of the core is within 1 inch of the longitudinal joint.

The cores shall be labeled by the Contractor with the Project number, date placed, lot number, and sub-lot number. The core's label shall include "M" for a mat core and "J" for a joint core. For example, a mat core from the first lot and the first sub-lot shall be labeled with "M1 - 1." A mat core from the second lot and first sub-lot shall be labeled "M2-1" (see Figure 4.06-5). The Engineer shall fill out a MAT-109 to accompany the cores. The Contractor shall deliver the cores and MAT-109 to the Department's Central Lab. The Contractor shall use a container approved by the Engineer. The container shall have a lid capable of being locked shut and tamper proof. The Contractor shall use foam, bubble wrap, or another suitable material to prevent the cores from being damaged during handling and transportation. Once the cores and MAT-109 are in the container the Engineer will secure the lid using security seals at the removable hinges(s) and at the lid opening(s). The security seals' identification number must be documented on the MAT-109. All sealed containers shall be delivered to the Department's

Central Lab within two working days from time of extraction. Central Lab personnel will break the security seal and take possession of the cores.

Figure 4.06-5: Labeling of Cores



Each core hole shall be filled within 4 hours upon core extraction. Prior to being filled, the hole shall be prepared by removing any free water and applying tack coat using a brush or other means to uniformly cover the cut surface. The core hole shall be filled using a bituminous concrete mixture at a minimum temperature of 240°F containing the same or smaller nominal maximum aggregate size and compacted with a hand compactor or other mechanical means to the maximum compaction possible. The bituminous concrete shall be compacted to 1/8 inch above the finished pavement.

Simple Average Density Lots:

A standard simple average density lot is the quantity of material placed within the defined area excluding any bridge decks.

A combo simple average density lot is the quantity of material placed within the defined area including bridge decks less than or equal to 500 feet long.

A bridge simple average density lot is the quantity of material placed on a bridge deck longer than 500 feet.

The number of cores per lot shall be determined in accordance with Table 4.06-4. If a randomly selected mat or joint core location is on a bridge deck, the core is to be obtained on the bridge deck in addition to the core(s) required on the bridge deck.

The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

The longitudinal locations of mat cores within a standard, combo, or bridge lot containing multiple paving passes will be determined using the combined length of the paving passes within the lot.

TABLE 4.06-4: Number of Cores per Lot (Simple Average)

Lot Type	No. of Mat Cores		No. of Joint Cores	
Standard Lot < 500 Tons	3		3	
Standard Lot ≥ 500 Tons	4		4	
Combo Lot < 500 Tons	2 plus	1 per bridge (≤ 300')	2 plus	1 per bridge (≤ 300)
Combo Lot ≥ 500 Tons ⁽¹⁾	4 plus	2 per bridge (301' – 500')	4 plus	2 per bridge (301' – 500')

TABLE 4.06-5: Number of Core per Bridge Density Lot (Simple Average)

Length of Bridge(s) (Feet)	Minimum No. of Mat Cores	Minimum No. of Joint Cores
< 500	2	2
501 – 1,500	3	3
1,501 – 2,500	4	4
2,501 and greater	5	5

PWL Density Lots:

A PWL mat density lot is 3,500 tons of material placed within the defined area excluding any bridges. One mat core will be obtained per every 500 tons placed.

A PWL joint density lot is 14,000 linear feet of longitudinal joint excluding any joints on bridge decks. One joint core will be obtained per every 2,000 linear feet of joint.

Bridge density lots will always be analyzed as using the simple average lot methodology. The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

11. Acceptance Sampling and Testing: Sampling shall be performed in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

Plant Material Acceptance: The Contractor shall provide the required sampling and testing during all phases of the work in accordance with M.04. The Department will verify the Contractor's acceptance test results. Should any test results exceed the specified tolerances in the Department's current QA Program for Materials, the Contractor's test results for a subject lot or sub lot may be replaced with the Department's results for the purpose of calculating adjustments. The verification procedure is included in the Department's current QA Program for Materials.

Density Acceptance: The Engineer will perform all acceptance testing in accordance with

AASHTO T 331. The density of each core will be determined using the daily production's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the Plant. When there was no testing of the parent material or any Gmm exceeds the specified tolerances in the Department's current QA Program for Materials, the Engineer will determine the maximum theoretical density value to be used for density calculations.

12. Density Dispute Resolution Process: The Contractor and Engineer will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Engineer's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within five calendar days of the notification of the test results. No request for dispute resolution will be allowed unless the Contractor provides quality control results from samples taken prior to and after finish rolling, and within the timeframe described in 4.06.03-8 supporting its position. No request for dispute resolution will be allowed for a density lot in which any core was not taken within the required 5 calendar days of placement. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Engineer may authorize the Contractor to obtain a new core or set of core samples per disputed lot. The core samples must be extracted no later than seven calendar days from the date of the Engineer's authorization. All such core samples shall be extracted and the core hole filled using the procedure outlined in 4.06.03-10.

a) Simple Average Lots: The Contractor may only dispute any simple average lot that is adjusted at or below 95 percent payment. The number and location (mat, joint, or structure) of the cores taken for dispute resolution must reflect the number and location of the original cores. The location of each core shall be randomly located within the respective original sub lot. The dispute resolution results shall be combined with the original results and averaged for determining the final in-place density value.

b) PWL Lots: The Contractor may dispute any PWL subplot when the PWL falls below 50% calculated in accordance with section 4.06.04.2.b. An additional random core in the subplot may be taken to validate the accuracy of the core in question. The Department will verify the additional core test result and may average the original test result with the additional core result for purpose of calculating adjustments.

13. Corrective Work Procedure:

If pavement placed by the Contractor does not meet the specifications, and the Engineer requires its replacement or correction, the Contractor shall:

- a) Propose a corrective procedure to the Engineer for review and approval prior to any corrective work commencing. The proposal shall include:
 - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.

- Proposed work schedule.
- Construction method and sequence of operations.
- Methods of maintenance and protection of traffic.
- Material sources.
- Names and telephone numbers of supervising personnel.

b) Any corrective courses placed as the final wearing surface shall match the specified lift thickness after completion.

14. Protection of the Work: The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor’s operations for the duration of the Project.

15. Cut Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Engineer. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

4.06.04—Method of Measurement:

1. HMA S* or PMA S*: Bituminous concrete will be measured for payment as the amount of material in tons placed as determined by the net weight on the delivered tickets and adjusted by area, thickness and weight as follows:

Quantity Adjustments: Adjustments may be applied to the placed bituminous concrete quantities that will be measured for payment using the following formulas:

Yield Factor for Adjustment Calculation = 0.0575 tons/SY/inch

Actual Area (SY) = [(Measured Length (ft)) x (Avg. of width measurements (ft))] \div 9 s.f./SY

Actual Thickness (t) = Total tons delivered / [Actual Area (SY) x 0.0575 tons/SY/inch]

a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the specified thickness (inch) of the lift being placed.

Quantity Adjusted for Area (T_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) tons

Where: L = Length (ft)

(t) = Actual thickness (inches)

W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

b) Thickness: If the actual average thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Engineer for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following

formula:

Quantity Adjusted for Thickness (T_T) = A x t_{adj} x 0.0575 = (-) tons

Where: A = Area = {[L x (Design width + tolerance (lift thickness)/12)] / 9}

t_{adj} = Adjusted thickness = [(Dt + tolerance) - Actual thickness]

Dt = Designed thickness (inches)

- c) **Weight:** If the quantity of bituminous concrete representing the mixture delivered to the Project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

Quantity Adjusted for Weight (T_w) = GVW – DGW= (-) tons

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale

2. Bituminous Concrete Adjustment Cost:

- a) Production Lot Adjustment: An adjustment may be applied to each production lot as follows:

- i. Non-PWL Production Lot (less than 3,500 tons):

The adjustment values in Tables 4.06-6 and 4.06-7 will be calculated for each sub lot based on the Air Void (AV) and Asphalt Binder Content (PB) test results for that sub lot. The total adjustment for each day’s production (lot) will be computed as follows:

Tons Adjusted for Superpave Design (T_{SD}) = [(AdjAV_t + AdjPB_t) / 100] x Tons

Where: AdjAV_t: Percent adjustment for air voids

AdjPB_t: Percent adjustment for asphalt binder

Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

Percent Adjustment for Air Voids = AdjAV_t = [AdjAV₁ + AdjAV₂ + AdjAV_i + ... + AdjAV_n]/n

Where: AdjAV_t= Total percent air void adjustment value for the lot

AdjAV_i = Adjustment value from Table 4.06-6 resulting from each sub lot or the average of the adjustment values resulting from multiple tests within a sub lot, as approved by the Engineer.

n = number of sub lots based on Table M.04.03-2

TABLE 4.06-6: Adjustment Values for Air Voids

Adjustment Value (AdjAV _i) (%)	S0.25, S0.375, S0.5, S1 Air Voids (AV)
+2.5	3.8 - 4.2
+3.125*(AV-3)	3.0 - 3.7
-3.125*(AV-5)	4.3 - 5.0
20*(AV-3)	2.3 - 2.9
-20*(AV-5)	5.1 - 5.7
-20.0	≤ 2.2 or ≥ 5.8

Percent Adjustment for Asphalt Binder = AdjPB_t = [(AdjPB₁ + AdjPB₂ + AdjPB_i + ... + AdjPB_n)] / n

Where: AdjPB_t = Total percent liquid binder adjustment value for the lot
 AdjPB_i = Adjustment value from Table 4.06-7 resulting from each sub lot
 n = number of binder tests in a production lot

TABLE 4.06-7: Adjustment Values for Binder Content

Adjustment Value (AdjAV _i) (%)	S0.25, S0.375, S0.5, S1 Pb
0.0	JMF Pb ± 0.3
- 10.0	≤ JMF Pb - 0.4 or ≥ JMF Pb + 0.4

ii. PWL Production Lot (3500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on AV, VMA, and PB test results. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

Only one test result will be considered for each sub lot. The specification limits are listed in M.04.

For AV, PB, and voids in mineral aggregate (VMA), the individual material quantity characteristic adjustment (Adj) will be calculated as follows:

For PWL between 50 and 90%: Adj(AV_t or PB_t or VMA_t) = (55 + 0.5 PWL) - 100

For PWL at and above 90%: Adj(AV_t or PB_t or VMA_t) = (77.5 + 0.25 PWL) - 100

Where: AdjAV_t = Total percent AV adjustment value for the lot

AdjPB_t = Total percent PB adjustment value for the lot

AdjVMA_t = Total percent VMA adjustment value for the lot

A lot with PWL less than 50% in any of the 3 individual material quality characteristics will be evaluated under 1.06.04.

The total adjustment for each production lot will be computed using the following formula:

Tons Adjusted for Superpave Design (T_{SD}) = [(0.5AdjAV_t + 0.25AdjPB_t + 0.25 AdjVMA_t) / 100] X Tons

Where Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material or if the last test result of the prior lot is over 30 calendar days old, the adjustment will be calculated as indicated in 4.06.04-2.a)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.a)ii.

Production Lot Adjustment: $T_{SD} \times \text{Unit Price} = \text{Est. (Pi)}$

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Pi)= Pay Unit in dollars representing incentive or disincentive per lot

b) Density Lot Adjustment: An adjustment may be applied to each density lot as follows:

i. Simple Average Density Lot (less than 3500 tons) and Bridge Lots:

The final lot quantity shall be the difference between the total payable tons for the Project and the sum of the previous lots. If either the Mat or Joint adjustment value is “remove and replace,” the density lot shall be removed and replaced (curb to curb).

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

Tons Adjusted for Density (T_D) = $[\{(P_{AM} \times 0.50) + (P_{AJ} \times 0.50)\} / 100] \times \text{Tons}$

Where: T_D = Total tons adjusted for density for each lot

P_{AM} = Mat density percent adjustment from Table 4.06-8

P_{AJ} = Joint density percent adjustment from Table 4.06-9

Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

TABLE 4.06-8: Adjustment Values for Pavement Mat density

Average Core Result	Percent Adjustment (Bridge and Non-Bridge) ⁽¹⁾⁽²⁾
Percent Mat Density	
97.1 - 100	-1.667*(ACRPD-98.5)
94.5 – 97.0	+2.5
93.5 – 94.4	+2.5*(ACRPD-93.5)
92.0 – 93.4	0
90.0 – 91.9	-5*(92-ACRPD)
88.0 – 89.9	-10*(91-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:

⁽¹⁾ ACRPD = Average Core Result Percent Density

⁽²⁾ All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67.

TABLE 4.06-9: Adjustment Values for Pavement Joint Density

Average Core Result	Percent Adjustment (Bridge and Non-Bridge) ⁽¹⁾⁽²⁾
Percent Joint Density	
97.1 – 100	-1.667*(ACRPD-98.5)
93.5 – 97.0	+2.5
92.0 – 93.4	+1.667*(ACRPD-92)
91.0 – 91.9	0
89.0 – 90.9	-7.5*(91-ACRPD)
88.0 – 88.9	-15*(90-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

Notes:

⁽¹⁾ ACRPD = Average Core Result Percent Density

⁽²⁾ All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

ii. PWL Density Lot (3,500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on mat and joint density test results. Only one result will be included for each subplot. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

The specification limits for the PWL determination are as follows:

Mat Density: 91.5-98%

Joint Density: 90-98%

For mat and joint density, the individual percent adjustment (PA) will be calculated as follows:

For PWL between 50 and 90%: $PA_{(M \text{ or } J)} = 0.25 * PWL - 22.50$

For PWL at and above 90%: $PA_{(M \text{ or } J)} = 0.125 * PWL - 11.25$

Where: PA_M = Total percent mat density adjustment value for the PWL mat density lot

PA_J = Total percent joint density adjustment value for the PWL joint density lot

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

A lot with PWL less than 50% will be evaluated under 1.06.04.

The total adjustment for each PWL mat density lot will be computed as follows:

Tons Adjusted for Mat Density (T_{MD}) = $(PA_M / 100) \times \text{Tons}$

Where: Tons= Weight of material (tons) in the lot adjusted by 4.06.4-1.

The total adjustment for each PWL joint density lot will be computed as follows:

Tons Adjusted for Joint Density (T_{JD}) = (PA_J / 100) X J_Tons

Tons Adjusted for Joint Density will be calculated at the end of each project or project phase.

Where: J_Tons = Tons in project or phase adjusted by 4.06.4 – 1 x $\frac{\text{Lot joint length}}{\text{Joint length in project or phase}}$

All bridge density lot adjustments will be evaluated in accordance with 4.06.04-2.b)i.

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material and placement conditions or if the last test result of the prior lot is over 30 calendar days old, the mat and joint individual adjustments will be calculated in accordance to Tables 4.06-8 and 4.06-9. T_{MD} and T_{JD} will be calculated as indicated in 4.06.04-2.b)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.b)ii.

Density Lot Adjustment (Simple Average Lots): T_D x Unit Price = Est. (Di)

Density Lot Adjustment (PWL Lots): (T_{MD} or T_{JD}) x Unit Price = Est. (DMi or DJi)

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Di)= Pay Unit in dollars representing incentive or disincentive per simple average density lot

Est. (DMi)= Pay Unit in dollars representing incentive or disincentive per PWL mat lot

Est. (DJi)= Pay Unit in dollars representing incentive or disincentive per PWL joint lot

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

3. Transitions for Roadway Surface: The installation of permanent transitions will be measured under the appropriate item used in the formation of the transition.

The quantity of material used for the installation of temporary transitions will be measured for payment under the appropriate item used in the formation of the transition. The installation and removal of a bond breaker and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

4. Cut Bituminous Concrete Pavement: The quantity of bituminous concrete pavement cut will be measured in accordance with 2.02.04.

5. Material for Tack Coat: The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Engineer. No tack coat material shall be included that is placed in excess of the tolerance described in 4.06.03.

a. Container Method – Material furnished in a container will be measured to the nearest 1/2

gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest 1/2 gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.

b. Vehicle Method

- i. Measured by Weight: The number of gallons furnished will be determined by weighing the material on calibrated scales furnished by the Contractor. To convert weight to gallons, one of the following formulas will be used:
 Tack Coat (gallons at 60°F) = Measured Weight (pounds) / Weight per gallon at 60°F
 Tack Coat (gallons at 60°F) = 0.996 x Measured Weight (pounds) / Weight per gallon at 77°F
- ii. Measured by automated metering system on the delivery vehicle:
 Tack Coat (gallons at 60°F) = 0.976 x Measured Volume (gallons).

6. Material Transfer Vehicle (MTV): The furnishing and use of a MTV will be measured separately for payment based on the actual number of surface course tons delivered to a paver using the MTV.

4.06.05—Basis of Payment:

1. HMA S* or PMA S*: The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for " HMA S*" or " PMA S*."

All costs associated with providing illumination of the work area are included in the general cost of the work.

All costs associated with cleaning the surface to be paved, including mechanical sweeping, are included in the general cost of the work. All costs associated with constructing longitudinal joints are included in the general cost of the work.

All costs associated with obtaining cores for acceptance testing and dispute resolution are included in the general cost of the work.

2. Bituminous Concrete Adjustment Costs: This adjustment will be calculated using the formulas shown below if all of the measured adjustments in 4.06.04-2 are not equal to zero. A positive or negative adjustment will be applied to monies due the Contractor.

- Production Lot: $\Sigma \text{ Est (Pi)} = \text{Est. (P)}$**
- Density Lot (Simple Average Lots): $\Sigma \text{ Est (Di)} = \text{Est. (D)}$**
- Density Lot (PWL): $\Sigma \text{ Est (DMi)} + \Sigma \text{ (D)Ji} = \text{Est. (D)}$**
- Bituminous Concrete Adjustment Cost= Est. (P) + Est. (D)**

Where: Est. ()= Pay Unit in dollars representing incentive or disincentive in each production or density lot calculated in 4.06.04-2

The Bituminous Concrete Adjustment Cost item, if included in the bid proposal or estimate, is not to be altered in any manner by the Bidder. If the Bidder should alter the amount shown, the altered figure will be disregarded and the original estimated cost will be used for the Contract.

3. **Transitions for Roadway Surface:** The installation of permanent transitions will be paid under the appropriate item used in the formation of the transition. The quantity of material used for the installation of temporary transitions will be paid under the appropriate pay item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.
4. The cutting of bituminous concrete pavement will be paid in accordance with 2.02.05.
5. Material for tack coat will be paid for at the Contract unit price per gallon at 60°F for "Material for Tack Coat."
6. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for "Material Transfer Vehicle."

Pay Item	Pay Unit
HMA S*	ton
PMA S*	ton
Bituminous Concrete Adjustment Cost	est.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

SECTION 5.86 - CATCH BASINS, MANHOLES AND DROP INLETS

5.86.01—Description

5.86.02—Materials

5.86.03—Construction Methods

5.86.04—Method of Measurement

5.86.05—Basis of Payment

5.86.01—Description: The work under this Section shall consist of furnishing, preparing, and installing catch basins, manholes and drop inlets (and also the removal, abandonment, alteration, reconstruction, or conversion of such existing structures) in conformity with the lines, grades, dimensions and details shown on the plans.

This Section shall also include resetting or replacing catch basin tops as well as manhole frames and covers.

5.86.02—Materials: The materials for this work shall meet the following requirements:

Drainage structures shall meet the requirements of M.08.02 and shall utilize concrete with a 28-day minimum compressive strength of 4000 psi.

Galvanizing shall meet the requirements of M.06.03.

Mortar shall meet the requirements of M.11.04.

Butyl rubber joint seal shall meet the requirements of ASTM C990.

Granular fill, if necessary, shall meet the requirements of M.02.01.

Protective compound material shall be a type appearing on the Department's Qualified Products List and be acceptable to the Engineer, as specified in M.03.09.

5.86.03—Construction Methods: Drainage trench excavation, including rock in drainage trench excavation and backfilling, shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where a drainage structure is to be installed below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the proposed drainage structure or to ensure a uniform foundation for the structure.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with

approved granular fill, thoroughly compacted in lifts not to exceed 6 inches. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

When a drainage structure outside of proposed drainage trench limits is to be removed, it shall be completely removed and all pipes shall be removed or plugged with cement masonry.

When a drainage structure is to be abandoned, the structure shall be removed to a depth 2 feet below the subgrade or as directed by the Engineer. The floor of the structure shall be broken and all pipes shall be plugged with cement masonry.

Drainage structures shall be constructed in accordance with the plans and the requirements contained herein for the character of the work involved. The provisions of 6.02.03 pertaining to bar reinforcement shall apply except that shop drawings need not be submitted for approval unless called for in the plans, Contract or directed by the Engineer. Welding shall be performed in accordance with the applicable sections of the AWS Structural Welding Code, D1.1.

When it becomes necessary to increase the horizontal dimensions of manholes, catch basins and drop inlets to sizes greater than those shown on the plans in order to provide for multiple pipe installations, large pipes or for other reasons, the Contractor shall construct such manholes, catch basins and drop inlets to modified dimensions as directed by the Engineer.

The surfaces of the tops of all catch basins, and drop inlets shall be given a coat of protective compound material, at the manufacturer's recommended application rate, immediately upon completion of the concrete curing period.

All masonry units shall be laid in full mortar beds.

Metal fittings for catch basins, manholes or drop inlets shall be set in full mortar beds or otherwise secured as shown on the plans.

All inlet and outlet pipes shall be set flush with the inside face of the wall of the drainage structure as shown on the plans. The pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their outer surfaces.

When constructing a new drainage structure within a run of existing pipe, the section of existing pipe disturbed by the construction shall be replaced with new pipe of identical type and size extending from the drainage structure to the nearest joint of the existing pipe in accordance with 6.86.03 or as directed by the Engineer.

Backfilling shall be performed in accordance with 2.86.03.

Frames, covers and tops which are to be reset shall be removed from their present beds, the walls or sides shall be rebuilt to conform to the requirements of the new construction and the frames, covers and tops shall be reset as shown on the plans or as directed by the Engineer.

5.86.04—Method of Measurement:

Drainage Trench Excavation: In accordance with 2.86.04, excavation for drainage trench will not be measured for payment but shall be included in the Contract unit price for the type of structure being installed.

Rock in Drainage Trench Excavation: Rock in Drainage Trench Excavation will be measured in accordance with the drainage trench excavation limits described in 2.86.03.

Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Resetting of Manholes, Catch Basins and Drop Inlets will be measured as separate units.

Replacement of frames, covers, and tops will be measured as a unit for catch basin top or manhole frame and cover.

Conversion of drainage structures as specified on the plans, or as directed by the Engineer, including structure reconstruction will be measured for payment as a unit.

Removal or abandonment of drainage structures outside of drainage trench excavation limits, as defined in 2.86.03, will be measured as separate units.

There will be no measurement or direct payment for the application of the protective compound material, the cost of this work shall be considered as included in the general cost of the work.

Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04.

There will be no measurement or direct payment for plugging existing pipes with cement masonry, the cost of this work will be considered as included in the general cost of the work.

5.86.05—Basis of Payment:

Drainage Trench Excavation for the installation of proposed structures described herein will be paid for under the respective drainage Contract item(s) for which the excavation is being performed, in accordance with the provisions of 2.86.05.

Rock in Drainage Trench Excavation will be paid for in accordance with the provisions of 2.86.05.

Manholes and Catch Basins will be paid for at the Contract unit price for each "Manhole," or "Catch Basin," of the type specified, at "0' to 10' Deep" or "0' to 20' Deep," complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Drop Inlets will be paid for at the Contract unit price for each "Drop Inlet," of the type specified, complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

Manholes, Catch Basins and Drop Inlets constructed to modified dimensions as directed by the Engineer, will be paid for as follows:

Where the interior floor area has to be increased to accommodate existing field conditions, as measured horizontally at the top of the base of the completed structure, and does not exceed 125% of the interior floor area as shown on the plans for that structure, then the structure shall be paid for at the Contract unit price for each "Manhole," "Catch Basin," or "Drop Inlet" of the type specified. Where the floor area is greater than 125%, the increase in the unit price for the individual structure shall be in direct proportion to the increase of the completed structure interior floor area as compared to the interior floor area as shown on the plans for that structure. Such increased unit price shall include all excavation, materials, equipment, tools, and labor incidental to the completion of the structure.

Reset Units will be paid for at the Contract unit price each for "Reset Manhole," "Reset Catch Basin," or "Reset Drop Inlet," of the type specified, respectively, complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement structure, and all materials, equipment, tools and labor incidental thereto, except when the work requires reconstruction greater than 3 feet, measured vertically, then the entire cost of resetting the unit will be paid for as Extra Work in accordance with the provisions of 1.04.05.

Frames, Covers, and Tops when required in connection with reset units, will be paid for at the Contract unit price each for such "Manhole Frame and Cover" or "(Type) Catch Basin Top," complete in place, including all incidental expense; or when no price exists, the furnishing and placing of such material will be paid for as Extra Work in accordance with the provisions of 1.04.05.

When the catch basin top has a stone or granite curb in its design, the curb or inlet shall be included in the cost of the "(Type) Catch Basin Top."

Conversion of drainage structures will be paid for at the Contract unit price each for "Convert Catch Basin to (Type) Catch Basin," "Convert Catch Basin to (Type) Manhole," or "Convert Manhole to (Type) Catch Basin," complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, all alterations to existing structure, all materials including catch basin frame and grate of the type specified, or manhole frame and cover, all equipment, tools and labor incidental thereto.

The maximum change in elevation of frame under these items shall not exceed 3 feet. Greater depth changes, if required, shall be paid for as Extra Work, in accordance with 1.04.05.

Removal or abandonment of drainage structures outside of drainage trench excavation limits as defined in 2.86.03 will be paid for at the Contract unit price each for "Remove Drainage Structure – 0' to 10' Deep," "Remove Drainage Structure – 0' to 20' Deep," or "Abandon Drainage Structure," which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
(Type) Catch Basin – 0' to 10' Deep	ea.
(Type) Catch Basin – 0' to 20' Deep	ea.
Manhole (Size) – 0' to 10' Deep	ea.
Manhole (Size) – 0' to 20' Deep	ea.
(Type) Drop Inlet	ea.
Reset Catch Basin	ea.
Reset Manhole	ea.
Reset Drop Inlet	ea.
Convert Catch Basin to (Type) Catch Basin	ea.
Convert Catch Basin to (Type) Manhole	ea.
Convert Manhole to (Type) Catch Basin	ea.
Manhole Frame and Cover	ea.
(Type) Catch Basin Top	ea.
Remove Drainage Structure – 0' to 10' Deep	ea.
Remove Drainage Structure – 0' to 20' Deep	ea.
Abandon Drainage Structure	ea.

SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING

Description:

Work under this item shall conform to the requirements of Section 12.00 supplemented as follows:

12.00.07 – Global Positioning System (GPS) coordinates for signs:

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new permanent State owned and maintained signs (temporary and construction signs are not to be included) installed in the project. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to DOT-SignInventory@ct.gov.

The horizontal datum is to be set to the State Plane Coordinate System, North American Datum of 1983 (NAD83) in feet. The minimum tolerance must be within 10 feet. The format of the GPS information shall be provided in a Microsoft Office compatible spreadsheet (Excel) file with data for each sign. The record for each sign installed is to be compatible with the anticipated CTDOT Sign Inventory and Management System (CTSIMS). The following format shall be used. However, the data fields noted by “#” are not required for the project submission. These entries will be completed as part of the Traffic Engineering CTSIMS data upload.

The cost of this work shall be included in the cost of the respective sign face – sheet aluminum and sign face – extruded aluminum items. The receipt of this electronic database must be received and accepted by the Engineer prior to final payment for items involving permanent highway signing. The electronic database information shall detail information regarding the sign actually installed by the project.

Field Number	Type	size	Description
1	text	20	Record Number (starting at 1...)
2	text	20	Sign Catalog Number
# 3	text	10	Size Height
# 4	text	10	Size Width
5	text	25	Legend
# 6	text	10	Background Color
# 7	text	10	Copy Color
8	Link	25	Material (see acceptable categories)
9	text	30	Comments if any
# 10	text	20	MUTCD Type
11	text	15	Town

	12	text	5	Route
	13	text	5	Route direction
#	14	text	10	Highway Log Mileage
	15	text	15	Latitude
	16	text	15	Longitude
	17	text	25	Mounting Type
	18	text	25	Reflective Sheeting Type
	19	date	25	Date Installed
	20	text	10	Number of Posts
	21	text	255	Sheeting Manufacturer name and address
	22	text	15	State Project Number (or)
	23	text	15	Encroachment Permit number.
	24	Graphic	*	Sign Picture Graphic.

* Graphics provided shall be representative of the sign supplied and be in color. Graphic formats shall be either JPG or TIFF and provided with a recommended pixel density of 800 x 600. The graphic shall be inserted in the supplied media in field 24 for each sign.

SECTION M.04 - BITUMINOUS CONCRETE MATERIALS

Section M.04 is being deleted in its entirety and replaced with the following:

M.04.01—Bituminous Concrete Materials and Facilities

M.04.02—Mix Design and Job Mix Formula (JMF)

M.04.03—Production Requirements

M.04.01—Bituminous Concrete Materials and Facilities: Each source of material, Plant, and laboratory used to produce and test bituminous concrete must be qualified on an annual basis by the Engineer. AASHTO or ASTM Standards noted with an (M) have been modified and are detailed in Table M.04.03-5.

Aggregates from multiple sources of supply must not be blended or stored in the same stockpile.

1. Coarse Aggregate: All coarse aggregate shall meet the requirements listed in M.01.

2. Fine Aggregate: All fine aggregate shall meet the requirements listed in M.01.

3. Mineral Filler: Mineral filler shall conform to the requirements of AASHTO M 17.

4. Performance Graded (PG) Asphalt Binder:

(a) General:

- i. PG asphalt binder shall be uniformly mixed and blended and be free of contaminants such as fuel oils and other solvents. Binder shall be properly heated and stored to prevent damage or separation.
- ii. The binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29. The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the binder specific gravity at 77°F; rotational viscosity at 275°F and 329°F; and the mixing and compaction viscosity-temperature chart for each shipment.
- iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder. Contractor Plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment is accompanied by a statement certifying that the transport vehicle was inspected before loading was found acceptable for the material shipped and that the binder is free of contamination from any residual material, along with 2 copies of the bill of lading.
- iv. The blending or combining of PG binders in 1 storage tank at the Plant from different suppliers, grades, or additive percentages is prohibited.

(b) Basis of Approval: The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with

necessary certification in accordance with AASHTO R 26(M). Only suppliers/refineries that have an approved “Quality Control Plan for Performance Graded Binders” formatted in accordance with AASHTO R 26(M) may supply PG binders to Department projects.

(c) Standard Performance Grade (PG) Binder:

- i. Standard PG binder shall be defined as “Neat.” Neat PG binders shall be free from modification with: fillers, extenders, reinforcing agents, adhesion promoters, thermoplastic polymers, acid modification and other additives such as re-refined motor oil, and shall indicate such information on each bill of lading and Certified Test Report.
- ii. The standard asphalt binder shall be PG 64S-22.

(d) Modified Performance Grade (PG) Binder: The modified asphalt binder shall be Performance Grade PG 64E-22 asphalt modified solely with a Styrene-Butadiene-Styrene (SBS) polymer. The polymer modifier shall be added at either the refinery or terminal and delivered to the bituminous concrete production facility as homogenous blend. The stability of the modified binder shall be verified in accordance with ASTM D7173 using the Dynamic Shear Rheometer (DSR). The DSR $G^*/\sin(\delta)$ results from the top and bottom sections of the ASTM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report. The binder shall meet the requirements of AASHTO M 332 (including Appendix X1) and AASHTO R 29.

(e) Warm Mix Additive or Technology:

- i. The warm mix additive or technology must be listed on the North East Asphalt User Producer Group (NEAUPG) Qualified Warm Mix Asphalt (WMA) Technologies List at the time of bid, which may be accessed online at <http://www.neaupg.uconn.edu>.
- ii. The warm mix additive shall be blended with the asphalt binder in accordance with the manufacturer’s recommendations.
- iii. The blended binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29 for the specified binder grade. The Contractor shall submit a Certified Test Report showing the results of the testing demonstrating the binder grade. In addition, it must include the grade of the virgin binder, the brand name of the warm mix additive, the manufacturer’s suggested rate for the WMA additive, the water injection rate (when applicable), and the WMA Technology manufacturer’s recommended mixing and compaction temperature ranges.

5. Emulsified Asphalts:

(a) General:

- i. The emulsified asphalt shall meet the requirements of AASHTO M 140(M) or AASHTO M 208 as applicable.
- ii. The emulsified asphalts shall be free of contaminants such as fuel oils and other solvents.
- iii. The blending at mixing Plants of emulsified asphalts from different suppliers is prohibited.

(b) Basis of Approval:

- i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and storage methods, and certifications in accordance with AASHTO R 77. Only suppliers that have an approved “Quality Control Plan for Emulsified Asphalt” formatted in accordance with AASHTO R 77 and that submit monthly split samples per grade to the Engineer may supply emulsified asphalt to Department projects.
- ii. Each shipment of emulsified asphalt delivered to the Project site shall be accompanied with the corresponding Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon at 77°F and Material Certificate.
- iii. Anionic emulsified asphalts shall meet the requirements of AASHTO M-140. Materials used for tack coat shall not be diluted and meet grade RS-1 or RS-1h. When ambient temperatures are 80°F and rising, grade SS-1 or SS-1h may be substituted if permitted by the Engineer.
- iv. Cationic emulsified asphalt shall meet the requirements of AASHTO M-208. Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80°F and rising, grade CSS-1 or CSS-1h may be substituted if permitted by the Engineer.

6. Reclaimed Asphalt Pavement (RAP):

- (a) General: RAP is a material obtained from the cold milling or removal and processing of bituminous concrete pavement. RAP material shall be crushed to 100% passing the 1/2 inch sieve and free from contaminants such as joint compound, wood, plastic, and metals.
- (b) Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:
 - i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a Materials Certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.
 - ii. When the RAP material source or quality is not known, the Contractor shall request approval from the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a Material Certificate and applicable test results stating that the RAP consists of aggregates that meet the specification requirements of M.04.01-1 through M.04.01-3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:

1. A 50-lb. sample of the RAP to be incorporated into the recycled mixture.
2. A 25-lb. sample of the extracted aggregate from the RAP.

7. Crushed Recycled Container Glass (CRCG):

(a) Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

(b) Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic, and metal and conforms to the following gradation:

CRCG Grading Requirements	
<u>Sieve Size</u>	<u>Percent Passing</u>
3/8 inch	100
No. 4	35-100
No. 200	0.0-10.0

The Contractor shall submit a Material Certificate to the Engineer stating that the CRCG complies with all the applicable requirements in this Section.

8. Joint Seal Material: Joint seal material must meet the requirements of ASTM D6690 - Type 2. The Contractor shall submit a Material Certificate in accordance with 1.06.07 certifying that the joint seal material meets the requirements of this Section.

9. Recycled Asphalt Shingles (RAS): RAS shall consist of processed asphalt roofing shingles from post-consumer asphalt shingles or from manufactured shingle waste. The RAS material under consideration for use in bituminous concrete mixtures must be certified as being asbestos-free and shall be entirely free of whole, intact nails. The RAS material shall meet the requirements of AASHTO MP 23.

The Producer shall test the RAS material to determine the asphalt content and the gradation of the RAS material. The Producer shall take necessary action to prevent contamination of RAS stockpiles.

The Contractor shall submit a Material Certificate to the Engineer stating that the RAS complies with all the applicable requirements in this Section.

10. Plant Requirements:

(a) General: The Plant producing bituminous concrete shall comply with AASHTO M 156.

(b) Storage Silos: The Contractor may use silos for short-term storage with the approval of the Engineer. A storage silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. When multiple silos are filled, the Contractor shall discharge 1 silo at a time. Simultaneous discharge of multiple silos for the same Project is not permitted.

Type of silo cylinder	Maximum storage time for all classes (hr)	
	HMA	WMA/PMA
Open Surge	4	Mfg Recommendations*
Unheated - Non-insulated	8	Mfg Recommendations*
Unheated - Insulated	18	Mfg Recommendations*
Heated - No inert gas	TBD by the Engineer	TBD by the Engineer

*Not to exceed HMA limits

- (c) Documentation System: The mixing Plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence, and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of the mixture and produce a printed record of these operations on each Plant ticket, as specified herein.

If recycled materials are used, the Plant tickets shall include their dry weight, percentage, and daily moisture content.

If a WMA Technology is added at the Plant, the Plant tickets shall include the actual dosage rate.

For drum Plants, the Plant ticket shall be produced at 5 minute intervals and maintained by the vendor for a period of 3 years after the completion of the Project.

For batch Plants, the Plant ticket shall be produced for each bath and maintained by the vendor for a period of 3 years after the completion of the Project. In addition, an asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding the following tolerances:

Each Aggregate Component	±1.5% of individual or cumulative target weight for each bin
Mineral Filler	±0.5% of the total batch
Bituminous Material	±0.1% of the total batch
Zero Return (Aggregate)	±0.5% of the total batch
Zero Return (Bituminous Material)	±0.1% of the total batch

The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic

batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

The scales shall not be manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning.

(d) Aggregates: Aggregate stockpiles shall be managed to prevent segregation and cross contamination. For drum Plants only, the percent moisture content, at a minimum prior to production and half way through production, shall be determined.

(e) Mixture: The dry and wet mix times shall be sufficient to provide a uniform mixture and a minimum particle coating of 95% as determined by AASTO T 195(M).

Bituminous concrete mixtures shall contain no more than 0.5% moisture when tested in accordance with AASHTO T 329.

(f) RAP: RAP moisture content shall be determined a minimum of twice daily (prior to production and halfway through production).

(g) Asphalt Binder: A binder log shall be submitted to the Department's Central Lab on a monthly basis.

(h) Warm mix additive: For mechanically foamed WMA, the water injection rate shall be monitored during production and not exceed 2.0% by total weight of binder. For additive added at the Plant, the dosage rate shall be monitored during production.

(i) Testing Laboratory: The Contractor shall maintain a laboratory to test bituminous concrete mixtures during production. The laboratory shall have a minimum of 300 s.f., have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, and be equipped with all necessary testing equipment as well as with a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the PC shall have a high speed internet connection and a functioning web browser with unrestricted access to <https://ctmail.ct.gov> . This equipment shall be maintained in working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Sufficient light and ventilation must be provided. During summer months adequate cooling or ventilation must be provided so the indoor air temperature shall not exceed the ambient outdoor temperature.

The laboratory testing apparatus, supplies, and safety equipment shall be capable of performing all the applicable tests in their entirety that are referenced in AASHTO R 35 and AASHTO M 323. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the Project with all necessary testing materials and equipment.

The Contractor shall maintain a list of laboratory equipment used in the acceptance testing processes including, but not limited to, balances, scales, manometer/vacuum gauge, thermometers, and gyratory compactor, clearly showing calibration and/or inspection dates, in

accordance with AASHTO R 18. The Contractor shall notify the Engineer if any modifications are made to the equipment within the laboratory. The Contractor shall take immediate action to replace, repair, or recalibrate any piece of equipment that is out of calibration, malfunctioning, or not in operation.

M.04.02—Mix design and Job Mix Formula (JMF)

1. Curb Mix:

(a) Requirements: The Contractor shall use bituminous concrete that meets the requirements of Table M.04.02-1. RAP may be used in 5% increments by weight up to 30%.

(b) Basis of Approval: Annually, an approved JMF based on a mix design for curb mix must be on file with the Engineer prior to use.

The Contractor shall test the mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209. If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced.

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the Plant operation had been consistently producing acceptable mixture.

Any change in component source of supply or consensus properties must be approved by the Engineer. A revised JMF shall be submitted prior to use.

**TABLE M.04.02-1:
Control Points for Curb Mix Mixtures**

Mix	Curb Mix	Production Tolerances from JMF Target
Grade of PG Binder content %	PG 64S-22 6.5 - 9.0	0.4
Sieve Size		
No. 200	3.0 - 8.0 (b)	2.0
No. 50	10 - 30	4
No. 30	20 - 40	5
No. 8	40 - 70	6
No. 4	65 - 87	7
1/4 inch		
3/8 inch	95 - 100	8
1/2 inch	100	8
3/4 inch		8
1 inch		
2 inch		
Additionally, the fraction of material retained between any 2 consecutive sieves shall not be less than 4%.		
Mixture Temperature		
Binder	325°F maximum	
Aggregate	280-350°F	
Mixtures	265-325°F	
Mixture Properties		
Air Voids (VA) %	0 – 4.0 (a)	
Notes: (a) Compaction Parameter 50 gyrations (N_{des}) (b) The percent passing the No. 200 sieve shall not exceed the percentage of bituminous asphalt binder.		

2. Superpave Design Method – S0.25, S0.375, S0.5, and S1:

- (a) **Requirements:** All designated mixes shall be designed using the Superpave mix design method in accordance with AASHTO R 35. A JMF based on the mix design shall meet the requirements of Tables M.04.02-2 to M.04.02-5. Each JMF and component samples must be submitted no less than 7 days prior to production and must be approved by the Engineer prior to use. All JMFs expire at the end of the calendar year.

All aggregate component consensus properties and tensile strength ratio (TSR) specimens shall be tested at an AASHTO Materials Reference Laboratory (AMRL) by NETTCP Certified Technicians.

All bituminous concrete mixes shall be tested for stripping susceptibility by performing the TSR test procedure in accordance with AASHTO T 283(M) at a minimum every 36 months. The compacted specimens may be fabricated at the Plant and then tested at an AMRL accredited facility. A minimum of 45000 grams of laboratory or plant blended mixture and the corresponding complete Form MAT-412s shall be submitted to the Division of Material Testing (DMT) for design TSR testing verification. The mixture submitted shall be representative of the corresponding mix design as determined by the Engineer.

- i. Superpave Mixtures with RAP: RAP may be used with the following conditions:
 - RAP amounts up to 15% may be used with no binder grade modification.
 - RAP amounts up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added. The JMF shall be accompanied by a blending chart and supporting test results in accordance with AASHTO M 323 Appendix X1, or by testing that shows the combined binder (recovered binder from the RAP, virgin binder at the mix design proportions, warm mix asphalt additive and any other modifier if used) meets the requirements of the specified binder grade.
 - Two (2) representative samples of RAP shall be obtained. Each sample shall be split, and 1 split sample shall be tested for binder content in accordance with AASHTO T 164 and the other in accordance with AASHTO T 308.
 - RAP material shall not be used with any other recycling option.

- ii. Superpave Mixtures with RAS: RAS may be used solely in HMA S1 mixtures with the following conditions:
 - RAS amounts up to 3% may be used.
 - RAS total binder replacement up to 15% may be used with no binder grade modification.
 - RAS total binder replacement up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added. The JMF shall be accompanied by a blending chart and supporting test results in accordance with AASHTO M 323 Appendix X1, or by testing that shows the combined binder (recovered binder from the RAP, virgin binder at the mix design proportions, warm mix asphalt additive and any other modifier if used) meets the requirements of the specified binder grade.
 - Superpave Mixtures with RAS shall meet AASHTO PP 78 design considerations.

- iii. Superpave Mixtures with CRCG: CRCG may be used solely in HMA S1 mixtures. One percent (1%) of hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option

- (b) Basis of Approval: The following information must be included in the JMF submittal:
 - i. Gradation, consensus properties and specific gravities of the aggregate, RAP or RAS.
 - ii. Average asphalt content of the RAP or RAS by AASHTO T 164.
 - iii. Source of RAP or RAS and percentage to be used.
 - iv. Warm mix Technology, manufacturer's recommended additive rate and tolerances, and

- manufacturer recommended mixing and compaction temperatures.
- v. TSR test report and anti-strip manufacturer and recommended dosage rate if applicable.
- vi. Mixing and compaction temperature ranges for the mix with and without the warm-mix technology incorporated.
- vii. JMF ignition oven correction factor by AASHTO T 308.

With each JMF submittal, the following samples shall be submitted to the Division of Materials Testing

- 4 - one (1) quart cans of PG binder, with corresponding Safety Data Sheet (SDS)
- 1 - 50 lbs. bag of RAP
- 2 - 50 lbs. bags of Plant-blended virgin aggregate

A JMF may not be approved if any of the properties of the aggregate components or mix do not meet the verification tolerances as described in the Department's current QA Program for Materials, Acceptance and Assurance Testing Policies and Procedures.

Any material based on a JMF, once approved, shall only be acceptable for use when it is produced by the designated Plant, it utilizes the same components, and the production of material continues to meet all criteria as specified in Tables M.04.02-2, M.04.02-3 and M.04.02-4. A new JMF must be submitted to the Engineer for approval whenever a new component source is proposed.

Only 1 mix with 1 JMF will be approved for production at a time. Switching between approved JMF mixes with different component percentages or sources of supply is prohibited.

TABLE M.04.02-2: Superpave Master Range for Bituminous Concrete Mixture Design Criteria

	S0.25		S0.375		S0.5		S1	
Sieve	Control Points		Control Points		Control Points		Control Points	
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)
2.0	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	100	-
1.0	-	-	-	-	-	-	90	100
3/4	-	-	-	-	100	-	-	90
1/2	100	-	100	-	90	100	-	-
3/8	97	100	90	100	-	90	-	-
No. 4	72	90	-	72	-	-	-	-
No. 8	32	67	32	67	28	58	19	45
No. 16	-	-	-	-	-	-	-	-
No. 30	-	-	-	-	-	-	-	-
No. 50	-	-	-	-	-	-	-	-
No. 100	-	-	-	-	-	-	-	-
No. 200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0
VMA (%)	16.5 ± 1		16.0 ± 1		15.0 ± 1		13.0 ± 1	
VA (%)	4.0 ± 1		4.0 ± 1		4.0 ± 1		4.0 ± 1	
Gse	JMF value		JMF value		JMF value		JMF value	
Gmm	JMF ± 0.030		JMF ± 0.030		JMF ± 0.030		JMF ± 0.030	
Dust / effective binder	0.6 - 1.2		0.6 - 1.2		0.6 - 1.2		0.6 - 1.2	
TSR	≥ 80%		≥ 80%		≥ 80%		≥ 80%	
T-283 Stripping	Minimal as determined by the Engineer							

(c) Mix Status: Each facility will have each type of bituminous concrete mixture rated based on the results of the previous year of production. Mix status will be provided to each bituminous concrete Producer prior to the beginning of the paving season.

The rating criteria are based on compliance with Air Voids and Voids in Mineral Aggregate (VMA) as indicated in Table M.04.03-4 and are calculated as follows:

Criteria A: Percentage of acceptance test results with compliant air voids.

Criteria B: The average of the percentage of acceptance results with compliant VMA and the percentage of acceptance results with compliant air voids.

The final rating assigned will be the lower of the rating obtained with Criteria A or Criteria B. Mix status is defined as:

“A” – Approved: Assigned to each mixture type from a production facility with a current rating of 70% or greater, or to each mixture type completing a successful PPT.

“PPT” – Pre-Production Trial: Temporarily assigned to each mixture type from a production facility when:

1. there are no compliant acceptance production test results submitted to the Department from the previous year;
2. there is a source change in one or more aggregate components;
3. there is a component percentage change of more than 5% by weight;
4. there is a change in RAP percentage;
5. the mixture has a rating of less than 70% from the previous season;
6. it is a new JMF not previously submitted; or
7. the average of 10 consecutive acceptance results for VFA, Density to N_{ini} or dust to effective binder ratio does not meet the criteria in tables M.04.02-2 and M.04.02-4.

Bituminous concrete mixtures rated with a “PPT” status cannot be used on Department projects. Testing shall be performed by the Producer with NETTCP certified personnel on material under this status. Test results must confirm that specification requirements in Tables M.04.02-2 through M.04.02-4 are met and the binder content (Pb) meets the requirements in Table M.04.03-2 before material can be used. One of the following methods must be used to verify the test results:

Option A: Schedule a day when a Department Inspector can be at the facility to witness testing

Option B: When the Contractor or their representative performs testing without being witnessed by an Inspector, the Contractor shall submit the test results and a split sample including 2 gyratory molds, 5,000 grams of boxed bituminous concrete, and 5,000 grams of cooled loose bituminous concrete for verification testing and approval

Option C: When the Contractor or their representative performs testing without being witnessed by a Department Inspector, the Engineer may verify the mix in the Contractor’s laboratory

Witnessing or verifying by the Department of compliant test results will change the mix’s status to “A”

The differences between the Department’s test results and the Contractor’s must be within the “C” tolerances included in the [Department’s QA Program for Materials, Acceptance and Assurance Testing Policies and Procedures](#) in order to be verified.

“U” – Not Approved: Status assigned to a type of mixture that does not have an approved JMF. Bituminous concrete mixtures with a “U” status cannot be used on Department projects.

**TABLE M.04.02-3:
Superpave Consensus Properties Requirements for Combined Aggregate**

Traffic Level	Design ESALs (80kN) Millions	Coarse Aggregate Angularity⁽¹⁾ ASTM D5821, Minimum %	Fine Aggregate Angularity AASHTO T 304, Method A Minimum %	Flat and Elongated Particles⁽²⁾ ASTM D4791, Maximum %	Sand Equivalent AASHTO T 176, Minimum %
1	< 0.3	55/- -	40	10	40
2	0.3 to < 3.0	75/- -	40	10	40
3	≥ 3.0	95/90	45	10	45

Notes:

⁽¹⁾ 95/90 denotes that a minimum of 95% of the coarse aggregate, by mass, shall have one fractured face and that a minimum of 90% shall have two fractured faces.

⁽²⁾ Criteria presented as maximum Percent by mass of flat and elongated particles of materials retained on the No. 4 sieve, determined at 5:1 ratio.

TABLE M.04.02-4: Superpave Traffic Levels and Design Volumetric Properties

Traffic Level	Design ESALs	Number of Gyration by Superpave Gyrotory Compactor			Percent Density of Gmm from HMA/WMA Specimen			Voids Filled with Asphalt (VFA) Based on Nominal Mix Size - Inch			
	(million)	N _{ini}	N _{des}	N _{max}	N _{ini}	N _{des}	N _{max}	0.25	0.375	0.5	1
1	<0.3	6	50	75	≤91.5	96.0	≤98.0	70-80	70-80	70-80	67-80
2	0.3 to <3.0	7	75	115	≤90.5	96.0	≤98.0	65-78	65-78	65-78	65-78
3	≥3.0	7	75	115	≤90.0	96.0	≤98.0	65-77	65-76	65-75	65-75

**TABLE M.04.02-5:
Superpave Minimum Binder Content by Mix Type and Level**

Mix Type	Level	Binder Content Minimum
S0.25	1	5.80
S0.25	2	5.70
S0.25	3	5.70
S0.375	1	5.70
S0.375	2	5.60
S0.375	3	5.60
S0.5	1	5.10
S0.5	2	5.00
S0.5	3	5.00
S1	1	4.60
S1	2	4.50
S1	3	4.50

M.04.03—Production Requirements:

1. Standard Quality Control Plan (QCP) for Production: The QCP for production shall describe the organization and procedures, which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the production process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must detail the inspection, sampling and testing protocols to be used, and

the frequency for each.

Control Chart(s) shall be developed and maintained for critical aspect(s) of the production process as determined by the Contractor. The control chart(s) shall identify the material property, applicable upper and lower control limits, and be updated with current test data. As a minimum, the following quality characteristics shall be included in the control charts:

- percent passing No. 4 sieve
- percent passing No. 200 sieve
- binder content
- air voids
- Gmm
- Gse
- VMA
-

The control chart(s) shall be used as part of the quality control system to document variability of the bituminous concrete production process. The control chart(s) shall be submitted to the Engineer the first day of each month.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications.

The Contractor shall submit complete production testing records to the Engineer within 24 hours in a manner acceptable to the Engineer.

The QCP shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QCP must also include a list of sampling and testing methods and frequencies used during production, and the names of all Quality Control personnel and their duties.

Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of bituminous concrete that complies with these specifications. The Contractor shall submit any changes to the QCP as work progresses.

2. Acceptance Requirements:

(a) General:

A NETTCP HMA Paving Inspector certified Contractor representative shall obtain a field sample of the material placed at the project site in accordance with AASHTO T 168 using the procedure indicated in Section 5.2.3 or an alternate procedure approved by the Engineer. The field sample shall be quartered by the Contractor in accordance with AASHTO R 47 and placed in an approved container. The container shall be sealed with a security tape provided by the Department and labelled to include the project number, date of paving, mix type, lot and subplot numbers and daily tonnage. The minimum weight of each quartered sample shall be 14000 grams. The Contractor shall transport one of the containers to the Departments Central Laboratory in Rocky Hill, retain one of the containers for potential use in dispute resolution and test the remaining material for acceptance.

The Contractor shall submit all acceptance tests results to the Engineer within 24 hours or prior to the next day’s production. All acceptance test specimens and supporting documentation must be retained by the Contractor and may be disposed of with the approval of the Engineer. All quality control specimens shall be clearly labeled and separated from the acceptance specimens.

Contractor personnel performing QC and acceptance testing must be present at the facility prior to, during, and until completion of production, and be certified as a NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Production of material for use on State projects must be suspended by the Contractor if such personnel are not present. Technicians found by the Engineer to be non-compliant with NETTCP policies and procedures or Department policies may be removed by the Engineer from participating in the acceptance testing process for Department projects until their actions can be reviewed.

Verification and dispute resolution testing will be performed by the Engineer in accordance with the Department’s QA Program for Materials.

Should the Department be unable to validate the Contractor’s acceptance test result(s) for a lot of material, the Engineer will use results from verification testing and re-calculate the pay adjustment for that lot. The Contractor may request to initiate the dispute resolution process in writing within 24 hours of receiving the adjustment and must include supporting documentation or test results to justify the request.

(b) Curb Mix Acceptance Sampling and Testing Procedures: Curb Mixes shall be tested by the Contractor at a frequency of 1 test per every 250 tons of cumulative production, regardless of the day of production.

When these mix designs are specified, the following acceptance procedures and AASHTO test methods shall be used:

TABLE M.04.03-1: Curb Mix Acceptance Test Procedures

Protocol	Reference	Description
1	AASHTO T 30(M)	Mechanical Analysis of Extracted Aggregate
2	AASHTO T 168	Sampling of Bituminous Concrete
3	AASHTO T 308	Binder Content by Ignition Oven Method (adjusted for aggregate correction factor)
4	AASHTO T 209(M)⁽²⁾	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
5	AASHTO T 312⁽²⁾	⁽¹⁾ Superpave Gyrotory Molds Compacted to N _{des}
6	AASHTO T 329	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

Notes: ⁽¹⁾ One (1) set equals 2 each of 6-inch molds. Molds to be compacted to 50 gyrations.

⁽²⁾ Once per year or when requested by the Engineer.

i. Determination of Off-Test Status:

1. Curb Mix is considered “off test” when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that mixture. If the mix is “off test,” the Contractor must take immediate actions to correct the deficiency and a new acceptance sample shall be tested on the same day or the following day of production.

2. When multiple silos are located at 1 site, mixture supplied to 1 project is considered as coming from 1 source for the purpose of applying the “off test” status.
3. The Engineer may cease supply from the Plant when test results from 3 consecutive samples are not within the JMF tolerances or the test results from 2 consecutive samples not within the control points indicated in Table M.04.02-1 regardless of production date.

ii. JMF Revisions

1. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF revision as allowed by the Engineer prior to any additional testing. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.
2. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

(c) Superpave Mix Acceptance:

i. Sampling and Testing Procedures

Production Lot: The lot will be defined as one of the following types:

- Non-PWL Production Lot for total estimated Project quantities per mixture less than 3500 tons: All mixture placed during a single continuous paving operation.
- PWL Production Lot for total estimated Project quantities per mixture of 3500 tons or more: Each 3500 tons of mixture produced within 30 calendar days.

Production Sub Lot:

- For Non-PWL: As defined in Table M.04.03-2
- For PWL: 500 tons (The last sub lot may be less than 500 tons.)

Partial Production Lots (For PWL only): A Lot with less than 3500 tons due to:

- completion of the course;
- a Job Mix Formula revision due to changes in:
 - o cold feed percentages over 5%,
 - o target combined gradation over 5%,
 - o target binder over 0.15%,
 - o any component specific gravity; or
- a lot spanning 30 calendar days.
-

The acceptance sample(s) location(s) shall be selected using stratified - random sampling in accordance with ASTM D3665 based on:

- the total daily estimated tons of production for non-PWL lots, or
- the total size for PWL lots.

One (1) acceptance sample shall be obtained and tested per sub lot with quantities over 125 tons. The Engineer may direct that additional acceptance samples be obtained. For non-PWL lots, one (1) acceptance test shall always be performed in the last sub lot based on actual tons of material produced.

For non-PWL lots, quantities of the same mixture per Plant may be combined daily for multiple State projects to determine the number of sub lots.

The payment adjustment will be calculated as described in 4.06.

**TABLE M.04.03-2:
Superpave Acceptance Testing Frequency per Type/Level/Plant for Non-PWL Lots**

Daily Quantity Produced in Tons (Lot)	Number of Sub Lots/Tests
0 to 125	0, Unless requested by the Engineer
126 to 500	1
501 to 1,000	2
1,001 to 1,500	3
1,500 or greater	1 per 500 tons or portions thereof

The following test procedures shall be used for acceptance:

TABLE M.04.03-3: Superpave Acceptance Testing Procedures

Protocol	Procedure	Description
1	AASHTO T 168	Sampling of bituminous concrete
2	AASHTO R 47	Reducing samples to testing size
3	AASHTO T 308	Binder content by ignition oven method (adjusted for aggregate correction factor)
4	AASHTO T 30(M)	Gradation of extracted aggregate for bituminous concrete mixture
5	AASHTO T 312	⁽¹⁾ Superpave gyratory molds compacted to N _{des}
6	AASHTO T 166	⁽²⁾ Bulk specific gravity of bituminous concrete
7	AASHTO R 35	⁽²⁾ Air voids, VMA
8	AASHTO T 209(M)	Maximum specific gravity of bituminous concrete (average of 2 tests)
9	AASHTO T 329	Moisture content of bituminous concrete

Notes: ⁽¹⁾ One (1) set equals 2 each of 6-inch molds. Molds to be compacted to N_{max} for PPTs and to N_{des} for production testing. The first sub lot of the year shall be compacted to N_{max}.

⁽²⁾ Average value of 1 set of 6-inch molds.

If the average ignition oven corrected binder content differs by 0.3% or more from the average of the Plant ticket binder content in 5 consecutive tests regardless of the production date (moving average), the Contractor shall immediately investigate, determine an assignable cause, and correct the issue. When 2 consecutive moving average differences are 0.3% or more and no assignable cause has been established, the Engineer may require a new ignition oven

aggregate correction factor to be performed or to adjust the current factor by the average of the differences between the corrected binder content and production Plant ticket for the last 5 acceptance results.

The Contractor shall perform TSR testing within 30 days after the start of production for all design levels of HMA- and PMA- S0.5 Plant-produced mixtures, in accordance with AASHTO T 283(M). The TSR test shall be performed at an AMRL certified laboratory by NETTCP certified technicians. The compacted specimens may be fabricated at the Plant and then tested at an AMRL accredited facility. A minimum of 45000 grams of plant blended mixture and the corresponding complete Form MAT-412s shall be submitted to the DMT for production TSR testing verification. The mixture submitted shall be representative of the corresponding mix design as determined by the Engineer. Additionally, the TSR test report and tested specimens shall be submitted to the Engineer for review. Superpave mixtures that require anti-strip additives (either liquid or mineral) shall continue to meet all requirements specified herein for binder and bituminous concrete. The Contractor shall submit the name, manufacturer, percent used, technical datasheet and SDS for the anti-strip additive (if applicable) to the Engineer.

i. Determination of Off-Test Status:

1. Superpave mixes shall be considered “*off test*” when any control point sieve, binder content, VA, VMA, and Gmm value is outside of the limits specified in Table M.04.03-4 or the target binder content at the Plant is below the minimum binder content stated in Table M.04.02-5. Note that further testing of samples or portions of samples not initially tested for this purpose cannot be used to change the status.
2. Any time the bituminous concrete mixture is considered off-test:
 - A. The Contractor shall notify the Engineer when the Plant is “*off test*” for any mix design that is delivered to the Project in any production day. When multiple silos are located at 1 site, mixture supplied to 1 project is considered as coming from 1 source for the purpose of applying the “*off test*” determination.
 - B. The Contractor must take immediate actions to correct the deficiency, minimize “*off test*” production to the Project, and obtain an additional Process Control (PC) test after any corrective action to verify production is in conformance with the specifications. A PC test will not be used for acceptance and is solely for the use of the Contractor in its quality control process.

ii. Cessation of Supply for Superpave Mixtures in Non-PWL Lots:

A mixture **shall not be used** on Department projects when it is “*off test*” for:

1. four (4) consecutive tests in any combination of VA, VMA or Gmm, regardless of date of production, or
2. two (2) consecutive tests in the control point sieves in 1 production shift.

As a result of cessation of supply, the mix status will be changed to PPT

iii. JMF revisions:

JMF revisions are only permitted prior to or after a production shift. A JMF revision is effective from the time it was submitted and is not retroactive to the previous test(s).

JMF revisions shall be justified by a documented trend of test results.

Revisions to aggregate or RAP specific gravities are only permitted when testing is performed at an AMRL certified laboratory by NETTCP certified technicians.

A JMF revision is required when the Plant target RAP or bin percentage deviates by more than 5% or the Plant target binder content deviates by more than 0.15% from the active JMF.

TABLE M.04.03-4: Superpave Mixture Production Requirements

	S0.25		S0.375		S0.5		S1		Tolerances
Sieve	Control Points		Control Points		Control Points		Control Points		From JMF Targets ⁽²⁾
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	+/- Tolerance
1.5	-	-	-	-	-	-	100	-	
1.0	-	-	-	-	-	-	90	100	
3/4	-	-	-	-	100	-	-	90	
1/2	100	-	100	-	90	100	-	-	
3/8	97	100	90	100	-	90	-	-	
No. 4	72	90	-	72	-	-	-	-	
No. 8	32	67	32	67	28	58	19	45	
No. 16	-	-	-	-	-	-	-	-	
No. 200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0	
Pb	JMF value		JMF value		JMF value		JMF value		0.3 ⁽³⁾
VMA (%)	16.5		16.0		15.0		13.0		1.0 ⁽⁴⁾
VA (%)	4.0		4.0		4.0		4.0		1.0 ⁽⁵⁾
Gmm	JMF value		JMF value		JMF value		JMF value		0.030
Mix Temp. – HMA ⁽⁶⁾	265-325°F ⁽¹⁾		265-325°F ⁽¹⁾		265-325°F ⁽¹⁾		265-325°F ⁽¹⁾		
Mix Temp. – PMA ⁽⁶⁾	285-335°F ⁽¹⁾		285-335°F ⁽¹⁾		285-335°F ⁽¹⁾		285-335°F ⁽¹⁾		
Prod. TSR	N/A		N/A		≥80%		N/A		
T-283 Stripping	N/A		N/A		Minimal TBD by the Engineer		N/A		

Notes: ⁽¹⁾ 300°F minimum after October 15.

⁽²⁾ JMF tolerances shall be defined as the limits for production compliance.

⁽³⁾ 0.4 for PWL lots

⁽⁴⁾ 1.3 for all PWL lots except S/P 0.25 mixes. 1.1 for S/P 0.25 Non-PWL lots. 1.4 for S/P 0.25 PWL lots

⁽⁵⁾ 1.2 for PWL lots

⁽⁶⁾ Also applies to placement

**Table M.04.03-5:
Modifications to Standard AASHTO and ASTM Test Specifications and Procedures**

AASHTO Standard Method of Test	
Reference	Modification
T 30	Section 7.2 through 7.4 Samples are not routinely washed for production testing
T 209	Section 7.2 The average of 2 bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
T 283	When foaming technology is used, the material used for the fabrication of the specimens shall be cooled to room temperature, and then reheated to the manufacturer’s recommended compaction temperature prior to fabrication of the specimens.
AASHTO Standard Recommended Practices	
Reference	Modification
R 26	<p>All laboratory technician(s) responsible for testing PG binders shall be certified or Interim Qualified by NETTCP as a PG Asphalt Binder Lab Technician. All laboratories testing binders for the Department are required to be accredited by the AMRL.</p> <p>Sources interested in being approved to supply PG binders to the Department by use of an “in-line blending system” must record properties of blended material and additives used.</p> <p>Each source of supply of PG binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders, etc., shall disclose the type of additive, percentage and any handling specifications or limitations required.</p> <p>All AASHTO M 320 references shall be replaced with AASHTO M 332. Once a month, 1 split sample and test results for each asphalt binder grade and each lot shall be submitted by the PG binder supplier to the Department’s Central Lab. Material remaining in a certified lot shall be re-certified no later than 30 days after initial certification. Each April and September, the PG binder supplier shall submit test results for 2 BBR tests at 2 different temperatures in accordance with AASHTO R 29.</p>

**SMALL CONTRACTOR AND SMALL CONTRACTOR MINORITY
BUSINESS ENTERPRISES (SET-ASIDE)**

March, 2001

NOTE: Certain of the requirements and procedures stated in this "Special Provision" are applicable prior to the execution of the Contract.

I. GENERAL

- A. The Contractor shall cooperate with the Connecticut Department of Transportation (CONNDOT) in implementing the required contract obligations concerning "Small Contractor" and "Small Contractor Minority Business Enterprise" use on this Contract in accordance with Section 4a-60g of the Connecticut General Statutes as revised. References, throughout this "Special Provision", to "Small Contractors" are also implied references to "Small Contractor Minority Business Enterprises" as both relate to Section IIA of these provisions. The Contractor shall also cooperate with CONNDOT in reviewing the Contractor's activities relating to this provision. This "Special Provision" is in addition to all other equal opportunity employment requirements of this Contract.
- B. For the purpose of this "Special Provision", the "Small Contractor(s)" and "Minority Business Enterprise(s)" named to satisfy the set-aside requirement must be certified by the Department of Administrative Services, Business Connections/ Set-Aside Unit [(860) 713-5236 www.das.state.ct.us/busopp.htm] as a "Small Contractor" and "Minority Business Enterprises" as defined by Section 4a-60g Subsections (1) and (3) of the Connecticut General Statutes as revised and is subject to approval by CONNDOT to do the work for which it is nominated pursuant to the criteria stipulated in Section IIC-3.
- C. Contractors who allow work which they have designated for "Small Contractor" participation in the pre-award submission required under Section IIC to be performed by other than the approved "Small Contractor" organization and prior to concurrence by CONNDOT, will not be paid for the value of the work performed by organizations other than the "Small Contractor" designated.
- D. If the Contractor is unable to achieve the specified contract goals for "Small Contractor" participation, the Contractor shall submit written documentation to CONNDOT's Manager of Construction Operations indicating his/her good faith efforts to satisfy goal requirements. Documentation is to include but not be limited to the following:

1. A detailed statement of the efforts made to select additional subcontract opportunities for work to be performed by each "Small Contractor" in order to increase the likelihood of achieving the stated goal.
 2. A detailed statement, including documentation of the efforts made to contact and solicit contracts with each "Small Contractor", including the names, addresses, dates and telephone numbers of each "Small Contractor" contacted, and a description of the information provided to each "Small Contractor" regarding the scope of services and anticipated time schedule of items proposed to be subcontracted and the nature of response from firms contacted.
 3. For each "Small Contractor" that placed a subcontract quotation which the Contractor considered not to be acceptable, provide a detailed statement of the reasons for this conclusion.
 4. Documents to support contacts made with CONNDOT requesting assistance in satisfying the contract specified or adjusted "Small Contractor" dollar requirements.
 5. Document other special efforts undertaken by the Contractor to meet the defined goal.
- E. Failure of the Contractor to have at least the specified dollar amount of this contract performed by "Small Contractor" as required in Section IIA of this "Special Provision" will result in the reduction in contract payment to the Contractor by an amount equivalent to that determined by subtracting from the specific dollar amount required in Section IIA, the dollar payments for the work actually performed by each "Small Contractor". The deficiency in "Small Contractor" achievement, will therefore, be deducted from the final contract payment. However, in instances where the Contractor can adequately document or substantiate its good faith efforts made to meet the specified or adjusted dollar amount to the satisfaction of CONNDOT, no reduction in payments will be imposed.
- F. All records must be retained for a period of three (3) years following completion of the contract and shall be available at reasonable times and places for inspection by authorized representatives of CONNDOT.
- G. Nothing contained herein, is intended to relieve any contractor or subcontractor or material supplier or manufacturer from compliance with all applicable Federal and State legislation or provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of this Contract.

II. SPECIFIC REQUIREMENTS

In order to increase the participation of "Small Contractors", CONNDOT requires the following:

- A. Not less than **Zero Percent** (*) of the **final** value of this Contract shall be subcontracted to and performed by, and/or supplied by, manufactured by and paid to "Small Contractors" and/or "Small Contractors Minority Business Enterprises".

If the above percentage is zero (0%) AND an asterisk () has been entered in the adjacent brackets [], this Contract is 100% solely set-aside for participation by "Small Contractors" and/or "Small Contractors Minority Business Enterprises".*

- B. The Contractor shall assure that each "Small Contractor" will have an equitable opportunity to compete under this "Special Provision", particularly by arranging solicitations, time for the preparation of Quotes, Scope of Work, and Delivery Schedules so as to facilitate the participation of each "Small Contractor".
- C. The Contractor shall provide to CONNDOT's Manager of Contracts within Seven (7) days after the bid opening the following items:
1. An affidavit (Exhibit I) completed by each named "Small Contractor" subcontractor listing a description of the work and indicating the dollar amount of all contract(s) and/or subcontract(s) that have been awarded to him/her for the current State Fiscal Year (July 1 - June 30) does not exceed the Fiscal Year limit of \$10,000,000.00.
 2. A certification of work to be subcontracted (Exhibit II) signed by both the Contractor and the "Small Contractor" listing the work items and the dollar value of the items that the nominated "Small Contractor" is to perform on the project to achieve the minimum percentage indicated in Section IIA above.
 3. A certification of past experience (Exhibit III) indicating the scope of work the nominated "Small Contractor" has performed on all projects, public and private, for the past two (2) years.
 4. In instances where a change from the originally approved named "Small Contractor" (see Section IB) is proposed, the Contractor is required to submit, in a reasonable and expeditious manner, a revised submission, comprised of the documentation required in Section IIC, Paragraphs 1, 2 and 3 and Section E together with documentation to substantiate and

justify the change, (i.e., documentation to provide a basis for the change) to CONNDOT's Manager of Construction Operations for its review and approval prior to the implementation of the change. The Contractor must demonstrate that the originally named "Small Contractor" is unable to perform in conformity to specifications, or unwilling to perform, or is in default of its contract, or is overextended on other jobs. The Contractor's ability to negotiate a more advantageous contract with another "Small Contractor" is not a valid basis for change. Documentation shall include a letter of release from the originally named "Small Contractor" indicating the reason(s) for the release.

- D. After the Contractor signs the Contract, the Contractor will be required to meet with CONNDOT's Manager of Construction Operations or his/her designee to review the following:
1. What is expected with respect to the "Small Contractor" set aside requirements.
 2. Failure to comply with and meet the requirement can and will result in monetary deductions from payment.
 3. Each quarter after the start of the "Small Contractor" the Contractor shall submit a report to CONNDOT's Manager of Construction Operations indicating the work done by, and the dollars paid to each "Small Contractor" to date.
 4. What is required when a request to sublet to a "Small Contractor" is submitted.
- E. The Contractor shall submit to CONNDOT's Manager of Construction Operations all requests for subcontractor approvals on standard forms provided by the Department.

If the request for approval is for a "Small Contractor" subcontractor for the purpose of meeting the contract required "Small Contractor" percentage stipulated in Section IIA, a copy of the legal contract between the Contractor and the "Small Contractor" subcontractor must also be submitted at the same time. Any subsequent amendments or modifications of the contract between the Contractor and the "Small Contractor" subcontractor must also be submitted to CONNDOT's Manager of Construction Operations with an explanation of the change(s). The contract must show items of work to be performed, unit prices and, if a partial item, the work involved by both parties.

In addition, the following documents are to be attached:

- (1) A statement explaining any method or arrangement for renting equipment. If rental is from a Contractor, a copy of Rental Agreement must be submitted.
- (2) A statement addressing any special arrangements for manpower.
- (3) A statement addressing who will purchase material.

F. Contractors subcontracting with a "Small Contractor" to perform work or services as required by this "Special Provision" shall not terminate such firms without advising CONNDOT, in writing, and providing adequate documentation to substantiate the reasons for termination if the designated "Small Contractor" firm has not started or completed the work or the services for which it has been contracted to perform.

G. Material Suppliers or Manufacturers

If the Contractor elects to utilize a "Small Contractor" supplier or manufacturer to satisfy a portion or all of the specified dollar requirements, the Contractor must provide the Department with:

1. An executed Affidavit Small Contractor (Set-Aside) Connecticut Department of Transportation Affidavit Supplier or Manufacturer (sample attached), and
2. Substantiation of payments made to the supplier or manufacturer for materials used on the project.

Brokers and packagers shall not be regarded as material Suppliers or manufacturer.

H. Non-Manufacturing or Non-Supplier "Small Contractor" Credit

Contractors may count towards its "Small Contractor" goals the following expenditures with "Small Contractor" firms that are not manufacturers or suppliers:

1. Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, material or supplies necessary for the performance of the contract provided that the fee or commission is determined by the Department of Transportation to be reasonable and consistent with fees customarily allowed for similar services.

2. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.
3. The fees or commissions charged for providing any bonds or insurance specifically required for the performance of the Contract, provided that the fee or commission is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.

III. **BROKERING**

For the purpose of this "Special Provision", a "Broker" is one who acts as an agent for others in negotiating contracts, purchases, sales, etc., in return for a fee or commission. Brokering of work by a "Small Contractor" is not allowed and is a contract violation.

IV. **PRE-AWARD WAIVERS:**

If the Contractor's submission of the "Small Contractor" listing, as required by Section IIC indicates that it is unable, by subcontracting to obtain commitments which at least equal the amount required by Section IIA, it may request, in writing, a waiver of up to 50% of the amount required by Section IIA. To obtain such a waiver, the Contractor must submit a completed "Application for Waiver of Small Contractor Minority Business Enterprise Goals" to CONNDOT's Manager of Contracts which must also contain the following documentation:

1. Information described in Section ID.
2. For each "Small Contractor" contacted but unavailable, a statement from each "Small Contractor" confirming its unavailability.

Upon receipt of the submission requesting a waiver, the CONNDOT's Manager of Contracts shall submit the documentation to the Director of the Office of Contract Compliance who shall review it for completeness. After completion of the Director of Contract Compliance's review, she/he should write a narrative of his/her findings of the application for a waiver, which is to include his/her recommendation. The Director of Contract Compliance shall submit the written narrative to the Chairperson of the DBE Screening Committee at least five (5) working days before the scheduled meeting. The Contractor shall be invited to attend the meeting and present his/her position. The DBE Screening Committee shall render a decision on the waiver request within five (5)

working days after the meeting. The DBE Screening Committee's decision shall be final. Waiver applications are available from the CONNDOT Manager of Contracts.

SMALL CONTRACTOR/*MINORITY BUSINESS ENTERPRISE
(* Delete if not Applicable)
SET-ASIDE PROGRAM
(QUALIFICATION AFFIDAVIT)

PROJECT(s) _____
(INCLUDING TOWN & DESCRIPTION)

STATE OF _____ CONNECTICUT _____

COUNTY OF _____

I _____, ACTING IN BEHALF

NAME OF PARTY SIGNING AFFIDAVIT

OF _____, DO HEREBY CERTIFY

PERSON FIRM OR ORGANIZATION

AND AFFIRM THAT THE INFORMATION SET FORTH BELOW IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE. AS OF THIS DATE _____ THE LIST OF SMALL CONTRACTOR SET-ASIDE PROGRAM - CONTRACTS AND/OR SUBCONTRACTS AWARDED DURING THE CURRENT FISCAL YEAR (JULY 1 - JUNE 30) 20 _____ IS AS FOLLOWS:

Table with 5 columns: Col. 1 TOWN AND PROJECT NUMBER, Col. 2 STATE AGENCY WHICH AWARDED CONTRACT, Col. 3 CONTRACT AMOUNT AWARDED UNDER THIS PROGRAM, Col. 4 AMOUNT OF WORK SUBCONTRACTED FROM OTHER FIRMS UNDER THIS PROGRAM, Col. 5 TOTAL AMOUNT OF ALL WORK UNDER THIS PROGRAM Col. 3 Plus Col. 4. Includes a 'TOTALS' row at the bottom.

NAME OF PERSON, FIRM OR ORGANIZATION

(FIRM SEAL)

SIGNATURE & TITLE OF OFFICIAL

SWORN TO AND SUBSCRIBED BEFORE ME BY _____

WHO IS PERSONALLY KNOWN TO ME, THIS _____ DAY OF _____, 20 _____

(NOTARY PUBLIC)

MY COMMISSION EXPIRES _____ SEAL

PLEASE NOTE THAT ALL THE WORK AWARDED OR SUBCONTRACTED TO YOUR FIRM UNDER THE SET-ASIDE PROGRAM IN A FISCAL YEAR (JULY 1-JUNE 30) INCLUDING THIS PROJECT, CANNOT BE MORE THAN \$10,000,000.00

EXHIBIT II

Mar.01

DEPARTMENT OF TRANSPORTATION
CONTRACT DIVISION
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

CERTIFICATION OF WORK TO BE SUBCONTRACTED
NOMINATED SMALL CONTRACTOR/*MINORITY BUSINESS ENTERPRISE

* Delete if not applicable

PLEASE INCLUDE A COPY OF CERTIFICATION LETTER

CONTRACTOR _____

ADDRESS _____

TOWN _____ PROJECT NO. _____

DESCRIPTION OF PROJECT _____

CONTRACT BID AMOUNT \$ _____

DATE _____

Listed below is the Nominated Small Contractor/Minority Business Enterprise for the above project and the requested data:

Name, Address & Tel No. of the Nominated Firm	ITEM(S)NUMBER(S) and Description of the Item(s) to be performed by and paid to the Subcontractor	Quantities (indicate if partial)	Prime's Bid Amount For Item	Dollar Amount Subcontracted	Small Business Set-Aside Dollar Requirement
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Signed By _____ Signed By _____ Contractor _____
 Small Contractor/*Minority Business Enterprise (Subcontractor) Title _____

EXHIBIT III CERTIFICATION
PAST CONSTRUCTION EXPERIENCE

Mar.01

SMALL CONTRACTOR / * MINORITY BUSINESS ENTERPRISES * Delete if not applicable

PLEASE LIST ALL CONSTRUCTION PROJECTS YOUR ORGANIZATION HAS WORKED ON IN THE PAST TWO FISCAL YEARS

PROJECT LOCATION NUMBER AND DESCRIPTION APPLICABLE	CONTRACT AMOUNT	IF WORK PERFORMED AS PRIME GIVE OWNERS NAME IF WORK PERFORMED AS SUBCONTRACTOR GIVE CONTRACTORS NAME	START DATE	ACTUAL OR ESTIMATED COMPLETION DATE	NAME AND PHONE OF OWNER OR PRIME CONTRACTOR AS

SIGNED BY: _____
 SMALL BUSINESS CONTRACTOR
 *MINORITY BUSINESS ENTERPRISES
 D.O.T. PROJECT NO. _____
 * Delete if not applicable

MARCH, 2001

**SMALL CONTRACTOR/SMALL CONTRACTOR MINORITY BUSINESS ENTERPRISE
(MBE) (SET-ASIDE) CONNECTICUT DEPARTMENT OF TRANSPORTATION
AFFIDAVIT – SUPPLIER OR MANUFACTURER**

This affidavit must be completed by the State Contractor's designated Small Contractor/ Small Contractor Minority Business Enterprise (MBE), notarized and attached to the contractor's request to utilize a Small Contractor/Small Contractor Minority Business Enterprise (MBE) supplier or manufacturer as a credit towards its Small Contractor/Small Contractor Minority Business Enterprise (MBE) contract requirement; failure to do so will result in not receiving credit towards the contract Small Contractor/Small Contractor Minority Business Enterprise (MBE) requirement.

State Project No. _____
Federal Aid Project No. _____
Description of Project _____

I, _____, acting in behalf of _____
(Name of person signing Affidavit) (Small Contractor/Small Contractor MBE contractor person,
_____ of which I am the _____ affirm that _____
firm, association or certify and corporation) (Title of Person) (Small
Contractor/Small Contractor MBE person, firm, association or corporation)
_____ is a certified Small Contractor/Small
Contractor Minority Business Enterprise, as defined by Section 4a-60g of the Connecticut General
Statutes, as revised.

I further certify and affirm that _____
(Small Contractor/Small Contractor MBE person, firm, association or corporation)
will assume the actual and contractual responsibility for the provision of the materials and/or supplies
sought by _____. If a manufacturer, I produce goods from raw
(State Contractor)
materials or substantially alter them before resale, or if a supplier, I perform a commercially useful
function in the supply process.

I understand that false statements made herein are punishable at Law (Sec. 53a-157, CGS, as revised).

(Name of Small Contractor/Small Contractor MBE person, firm, association or corporation)

(Signature and Title of Official making the Affidavit)

Subscribed and sworn to before me, the _____ day of _____ 200_____.

Notary Public (Commissioner of the Superior Court)

My Commission Expires _____

CERTIFICATE OF CORPORATION

I, _____, certify that I am the _____
(Official) of the Corporation named in the foregoing instrument; that I have been duly authorized to affix
the seal of the Corporation to such papers as require the seal; that _____, who
signed said instrument on behalf of the Corporation, was then _____ of
said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority
of its governing body and is within the scope of its corporation powers.

(Signature of Person Certifying)

(Date)

(Corporate Seal)

ITEM #0100600A – CONSTRUCTION ACCESS

Description:

Work under this item shall consist of the preparation, maintenance, and restoration of the construction access areas, as shown on the plans, to facilitate the bridge rehabilitation and underside of arch repairs. The staging areas and limits shown on the plans are schematic. Also included in this item is the restoration of the site back to its original condition upon completion of the work.

Maintenance of the access and staging area shall include daily cleanup of affected areas as directed by the Engineer in order to minimize impact to the surrounding area.

Construction Methods:

The Contractor is limited to foot traffic and transport of hand tools within the construction access areas. No heavy machinery, equipment or materials shall be used or stored within the construction access areas. Storage of construction materials and equipment shall not be allowed unless otherwise directed by the Engineer.

Southeast of the bridge, construction access shall be limited to the existing “dirt walk” as depicted in survey shown on the plans within the Routh 34 right of way. In certain areas where the dirt walk narrows to a width less than 5 feet, the Contractor shall be allowed to widen the path to a maximum 5 foot width. If overgrowth of the surrounding brush is found to obtrude within the dirt walk, the Contract shall be allowed to clear the pathway up to the edges of the path, but no further. Any areas where widening or clearing of the dirt walk is deemed necessary must be approved by Engineer prior to performing the work.

Northeast and northwest of the bridge, construction access shall be limited to those areas within the taking line shown on the plans and the Route 34 right of way. Access from the abutting properties shall not be allowed. The existing chain link fence at the top of the concrete wingwalls may be removed up to the limits of the ROW and taking line. Removal of fence beyond the taking line indicated on the plans shall not be allowed. The Contractor must restore the fence back its original condition upon completion of the work.

Method of Measurement:

This item, being paid on a lump sum basis, will not be measured for payment.

Basis of Payment:

Construction Access will be paid for at the contract lump sum price for “Construction Access” which price shall include the preparation, maintenance, and restoration of affected areas to original conditions and all materials, tools, equipment, labor and work incidental thereto.

Pay Item

Construction Access

Pay Unit

l.s.

ITEM #0202479A - REMOVAL OF HMA WEARING SURFACE

Description: Work under this item shall consist of the complete removal and disposal of the existing HMA wearing surface, membrane waterproofing and bond breaker covering the reinforced concrete slab, adjacent shoulders, and leading and trailing transition areas, and as shown on the plans, as ordered by the Engineer and in accordance with these specifications.

Construction Methods: The Contractor shall remove the HMA wearing surface, membrane waterproofing and bond breaker using means acceptable to the Engineer to completely expose the underlying concrete deck, without damaging the deck, roadway materials, and structures which are to remain intact.

Acceptable mechanical method for removal of HMA surface on a structure can be one of the following:

Micro-milling - Micro-milling equipment shall consist of Cold Plane or Rotomill Grinders using carbide cutting tools in a rotary drum. The equipment shall provide a tool spacing of not more than $\frac{3}{16}$ inch, capable of leaving a smooth, uniform pattern of striations with a maximum forward speed of 45 feet/minute.

Fine Milling – Fine milling equipment shall consist of Cold Plane or Rotomill Grinders using carbide cutting tool in a rotary drum. The equipment shall provide a tool spacing of not more than $\frac{5}{16}$ inch, capable of leaving a smooth, uniform pattern of striations with a maximum forward speed of 45 feet/minute.

Alternate methods may be submitted to the Engineer for review and acceptance. Demonstration of the alternate removal method shall be performed prior to consideration.

All particles and aggregate adhering to the exposed concrete that could, in the Engineer's opinion, cause failure of/or puncture the new membrane shall be removed. The existing HMA wearing surface, membrane waterproofing, and bond breaker that are removed shall be disposed of offsite by the Contractor unless otherwise noted in the contract documents or as directed by the Engineer.

Prior to removal of HMA wearing surface the Contractor shall conduct a survey. A minimum of four (4) representative depth measurements shall be taken per span for a span up to 100 feet in length to predetermine the overlay thickness. An additional measurement shall be taken for each 25 feet in span length. If depth of overlay varies across the structure, it shall be clearly marked to aid in the removal operation. Survey locations shall be filled with bituminous material if milling operation is not scheduled within five (5) days or at the direction of the Engineer.

The existing HMA wearing surface and membrane waterproofing shall be removed in its entirety to the limits shown on the plans. The removal operations shall not begin until the Contractor is prepared to perform the permanent patching and/or repair to the underlying concrete within five

(5) working days. If this in conflict with "Prosecution and Progress", "Maintenance and Protection of Traffic", or other contract requirements, the more stringent specification shall apply.

Protection shall be provided around existing catch basin inlets, bridge scuppers, manholes, utility valve boxes, median barriers, parapets, and other roadway structures. Any damage to such structures as a result of removal operations is the Contractor's responsibility and shall be repaired at the Contractor's expense.

A uniform textured riding surface shall be provided and maintained. The surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, poor workmanship, or inadequate survey. Any unsatisfactory surfaces caused by the removal operations are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer prior to opening the surface to traffic.

Any raised structures shall be clearly marked by high visibility paint and delineated with traffic control devices, as directed by the Engineer. Installation of traffic control devices will be included under the costs for "Maintenance and Protection of Traffic"; payment for the devices will be under their applicable items.

No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition will be established according to the requirements shown on the plans. If the milling machine is used to form a temporary transition, the length of the temporary transition shall conform to, Section 4.06 – Bituminous Concrete, "Transitions for Roadway Surface", the requirements shown on the plans, or as directed by the Engineer. At all permanent limits of removal, a clean vertical face shall be established prior to paving by saw cutting.

The sweeper shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. Other sweeping equipment may be provided in lieu of the sweeper where acceptable by the Engineer.

Method of Measurement: This work will be measured for payment by the number of square yards of HMA wearing surface removed to expose the underlying concrete slab including adjacent shoulders, and leading and trailing transitions. No area deductions will be made for minor unmilled areas such as scuppers, joints, and any similar structures.

Basis of Payment: This work will be paid for at the contract unit price per square yard for "Removal of HMA Wearing Surface", complete and accepted, which price shall include the removal of membrane waterproofing and bond breaker, saw cutting, and all equipment, tools and labor.

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of HMA Wearing Surface	S.Y.

ITEM #0204153A - HANDLING WATER

Description: Work under this item shall consist of furnishing, installing, maintaining, removing and disposing of a temporary water handling system to redirect water beyond, through or around the proposed construction and to allow work to be done in the dry. This item shall also include the design of the system. The water handling system may include, but shall not be limited to, water-handling-cofferdam(s), pumps, hoses and pipes. Also included shall be any work or equipment necessary for dewatering of this system.

Materials: The materials required for this work shall be as shown on the plans, on the accepted working drawings, or as ordered by the Engineer.

Construction Methods: The Contractor shall prepare and submit written procedures for handling water. Working drawings, in accordance with Article 1.05.02, shall also be prepared and submitted.

The Contractor shall verify stream conditions, elevations, or tidal conditions associated with the Project to determine the type of temporary water handling system required to redirect water away from work being performed. The system shall be designed to be compatible with the stage construction Maintenance and Protection of Traffic as indicated in the Contract, and shall conform to Section 1.10.

The Contractor shall be responsible for maintenance of the water handling system. If the system becomes damaged or displaced during construction, the system shall be corrected as required.

Unless otherwise provided or directed, all temporary water handling system components shall be removed and disposed of in an approved manner when no longer required.

Method of Measurement: The work under this item will not be measured for payment.

Basis of Payment: This work will be paid for on a cost-plus basis in accordance with the provisions of Article 1.09.04 – Extra and Cost-Plus Work, which price shall include submittals and working drawings, furnishing, installing, maintaining, removing, and disposing of all temporary water handling system components as are necessary for completion of the work, as well as all materials, equipment, tools, labor and work incidental thereto.

Pay Item
Handling Water

Pay Unit
Est.

ITEM #0406275A - FINE MILLING OF BITUMINOUS CONCRETE (0" TO 4")

Description: This work shall consist of the milling, removal, and disposal of existing bituminous concrete pavement.

Construction Methods: The Contractor shall remove the bituminous concrete material using means acceptable to the Engineer. The pavement surface shall be removed to the line, grade, and existing or typical cross-section shown on the plans or as directed by the Engineer.

The bituminous concrete material shall be disposed of offsite by the Contractor at an approved disposal facility unless otherwise stated in the Contract.

Any milled surface, or portion thereof, that is exposed to traffic shall be paved within five (5) calendar days unless otherwise stated in the plans or Contract.

The equipment for milling the pavement surface shall be designed and built for milling bituminous concrete pavements. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement.

The milling machine shall be equipped with a built-in automatic grade averaging control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, contact ski (30 feet minimum), non-contact ski (20 feet minimum), or mobile string line (30 feet minimum). The transverse controls shall have an automatic system for controlling cross-slope at a given rate. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

The machine shall be able to provide a 0 to 4 inch deep cut in one pass. The rotary drum of the machine shall use carbide or diamond tipped tools spaced not more than $\frac{5}{16}$ inch apart. The forward speed of the milling machine shall be limited to no more than 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a lesser equipped milling machine may be permitted when approved by the Engineer.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense.

To prevent the infiltration of milled material into the storm drainage system, the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor's expense.

Surface Tolerance: The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. The Contractor, under the direction of the Inspector, shall perform random spot-checks with a Contractor supplied ten-foot straightedge to verify surface tolerances at a minimum of five (5) locations per day. The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed ¼ inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed ¼ inch. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

The depth of removal will be verified by taking measurements every 250 feet per each pass of the milling machine, or as directed by the Engineer. These depth measurements shall be used to monitor the average depth of removal.

Where a surface delamination between bituminous concrete layers or a surface delamination of bituminous concrete on Portland cement concrete causes a non-uniform texture to occur, the depth of milling shall be adjusted in small increments to a maximum of +/- ½ inch to eliminate the condition.

When removing bituminous concrete pavement entirely from an underlying Portland cement concrete pavement, all of the bituminous concrete pavement shall be removed leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Any unsatisfactory surfaces produced by the milling operation are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

No vertical faces, transverse or longitudinal, shall be left exposed to traffic unless the requirements below are met. This shall include roadway structures (catch basins, manholes, utility valve boxes, etc.). If any vertical face is formed in an area exposed to traffic, a temporary paved transition shall be established according to the requirements shown on the plans. If the milling machine is used to form a temporary transition, the length of the temporary transition shall conform to Special Provision Section 4.06 –Bituminous Concrete, "Transitions for Roadway Surface," the requirements shown on the plans, or as directed by the Engineer. At all

permanent limits of removal, a clean vertical face shall be established by saw cutting prior to paving.

Roadway structures shall not have a vertical face of greater than one (1) inch exposed to traffic as a result of milling. All structures within the roadway that are exposed to traffic and greater than one (1) inch above the milled surface shall receive a transition meeting the following requirements:

For roadways with a posted speed limit of 35 mph or less*:

1. Round structures with a vertical face of greater than 1 inch to 2.5 inches shall be transitioned with a hard rubber tapered protection ring of the appropriate inside diameter designed specifically to protect roadway structures.
2. Round structures with a vertical face greater than 2.5 inches shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.
3. All rectangular structures with a vertical face greater than 1 inch shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.

*Bituminous concrete tapers at a minimum 24 to 1 (24:1) taper in all directions may be substituted for the protection rings if approved by the Engineer.

For roadways with a posted speed limit of 40, 45 or 50 mph:

1. All structures shall receive a transition of bituminous concrete formed at a minimum 36 to 1 (36:1) taper in the direction of travel. Direction of travel includes both the leading and trailing side of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

For roadways with a posted speed limit of greater than 50 mph:

1. All structures shall receive a transition of bituminous concrete formed at a minimum 60 to 1 (60:1) taper in the direction of travel. Direction of travel includes both the leading and trailing side of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

All roadway structure edges and bituminous concrete tapers shall be clearly marked with fluorescent paint. The paint shall be maintained throughout the exposure to traffic.

The milling operation shall proceed in accordance with the requirements of the “Maintenance and Protection of Traffic” and “Prosecution and Progress” specifications, or other Contract requirements. The more stringent specification shall apply.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper truck. The sweeper truck shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. The sweeper truck shall operate at a forward speed that allows for the maximum pickup of millings from the roadway surface. Other sweeping equipment may be provided in lieu of the sweeper truck where acceptable by the Engineer.

Any milled area that will not be exposed to live traffic for a minimum of 48 hours prior to paving shall require a vacuum sweeper truck in addition to, or in lieu of, mechanical sweeping. The vacuum sweeper truck shall have sufficient power and capacity to completely remove all millings from the roadway surface including any fine particles within the texture of the milled surface. Vacuum sweeper truck hose attachments shall be used to clean around pavement structures or areas that cannot be reached effectively by the main vacuum. Compressed air may be used in lieu of vacuum attachments if approved by the Engineer.

Method of Measurement: This work will be measured for payment by the number of square yards of area from which the milling of asphalt has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar structures.

Basis of Payment: This work will be paid for at the Contract unit price per square yard for “Fine Milling of Bituminous Concrete (0” to 4”).” This price shall include all equipment, tools, labor, and materials incidental thereto.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled or paved transition; removal and disposal of millings; furnishing a sweeper truck and sweeping after milling. The costs for these items shall be included in the Contract unit price.

Pay Item	Pay Unit
Fine Milling of Bituminous Concrete (0”to 4”)	S.Y.

ITEM #0511211A – CONSTRUCT WEEP DRAINS

Description:

Work under this item shall consist of installing PVC weep drains through the existing abutment, including core drilling through the abutment, installation of the pipe weep drains, and grouting the PVC weep drains, at the locations indicated on the plans and as directed by the Engineer.

Materials:

Weep drain casing and slotted screen pipe shall be flush threaded PVC pipe conform to the requirements of ASTM D1785 and ASTM F480. Casing and slotted screen pipe shall be 1.5" NPS Schedule 40 pipe.

Slotted screen pipe shall be horizontally slotted and have a slot spacing of 1/8" or 3/16", with 0.040" slot width.

Grout shall conform to the requirements of Subarticle M.03.05.

Construction Methods:

The Contractor shall core drill through the existing abutment as shown on the plans, and at the slope indicated on the plans. The Contractor shall install new weep drains at the core drilled locations. The portion of weep drain within the abutment shall be solid PVC casing pipe. The portion of weep drain extending beyond the back face of abutment shall be slotted PVC screen pipe fitted with a cap or plug at the end of the pipe.

The casing pipe shall be securely grouted flush with the face of the abutment. The casing pipe shall be neatly cut flush with the face of the abutment, and finished such that there are no exposed burrs or sharp edges. The installation of the weep drains shall be coordinated with the reconstruction of the Abutment 1 face such that there is no visible indication of the core drilling operations once completed.

Method of Measurement:

This work will be measured for payment by the actual number of weep drains installed and accepted.

Basis of Payment:

This work shall be paid for at the contract unit price, per each, for "Construct Weep Drains", which price shall include all materials, equipment, tools and labor incidental thereto.

11/19/2018

Pay Item
Construct Weep Drains

Pay Unit
ea.

ITEM #0601070A – CLASS “S” CONCRETE

Description: Work under this item shall consist of locating and repairing voids in horizontal and vertical surfaces of concrete areas greater than 1 inch deep (exclusive of deck slabs and concrete pavement). This work shall include sawcutting, abrasive blast cleaning areas to be patched, roughening surfaces, and casting concrete as shown in the plans.

Access shall be provided for the Engineer to identify repair locations and limits prior to any repair work, and also shall be provided for the Engineer to verify soundness of the repairs.

Materials: Materials shall meet the requirements of Section M.03, modified as follows:

M.03.02—Mix Design Requirements is amended and supplemented as follows:

<u>TYPE</u>	<u>PROPORT. BY WT. APPROX.</u>	<u>WATER PER BAG MAX.</u>	<u>CEM. FACTOR</u>
Class "S"	1:2.16:2.20	5.7 (Gals.)	7.0 (Bags/C.Y.)

1. Coarse Aggregate:

(c) Grading: Coarse aggregate for Class “S” Concrete shall meet the following gradation requirements:

For Class “S” Concrete, the required grading shall be obtained by using 100% 3/8 inch coarse aggregate.

3. Cement:

Type I or II Portland Cement shall be used for Class “S” Concrete.

5. Admixtures:

Add the following:

(c) Superplasticizing Admixtures: The superplasticizer admixture shall be a high-range water reducer (HRWR) capable of increasing the slump of the mix from approximately 2 1/2 inches to 6 1/2 inches upon the addition of the amount recommended by the respective manufacturer. The HRWR shall conform to ASTM C494 Type F or Type G and shall be approved by the Engineer. The use of this material shall be in strict accordance with the respective manufacturer's written instructions and procedures.

M.03.04—Curing Materials is amended and supplemented as follows:

3. Liquid Membrane Forming Compound: No liquid membrane forming compound shall be used for Class “S” Concrete.

Add the following:

Welded Wire Fabric: Welded wire fabric shall conform to the requirements of ASTM A185.

Primer: Zinc rich primer shall conform to Federal Specification TT-P-641, Type 1 and shall be obtained from one of the suppliers on the American Galvanizers Association's most current Product Suppliers List for Zinc-Rich Paints and shall be brush-applied in accordance with the manufacturer's instructions. Spraying shall not be permitted. A Materials Certificate is required for the primer in accordance with Article 1.06.07, certifying the conformance of this material to the requirements stated herein.

Composition:

Class "S" Concrete shall conform to the requirements as specified in M.03 as amended herein. Class "S" Concrete shall contain not less than 6.5% and not more than 8.5% entrained air at the time of placement.

The Class "S" Concrete shall have a minimum 4,000 psi compressive strength at 28 days.

Consistency:

Class "S" Concrete shall have a slump range of 2 inches to 4 inches prior to the addition of the HRWR and from 6 inches to 8 inches slump after the addition of the HRWR. The addition rates of the air-entraining admixture (A.E.A.) and the HRWR will vary. Frequent field testing of the air content and slump prior to and after addition of the HRWR will be the determining factor of actual addition rates for each admixture.

Mixing Concrete:

For hand mixing of Class "S" Concrete, the Contractor shall provide scale(s) approved by the Engineer in which cement and aggregate can be accurately weighed for the required mix proportions.

Note: The Contractor shall also have measuring graduates marked for the proportioning of the A.E.A. and the HRWR. Do not mix the A.E.A. and the HRWR together before adding to the mix; the resultant solution will not work. DO NOT add the A.E.A. and the HRWR at the mixer simultaneously; these admixtures must be added separately in the mixing cycle. All manufactured materials shall be stored, mixed and used in strict accordance with the written recommendations of the respective manufacturers.

Material Storage: The Contractor shall store and maintain the A.E.A. and the HRWR materials in clean original containers as delivered by the manufacturer.

Construction Methods:

All surfaces of exposed concrete and reinforcing steel shall be free of oil, solvent, grease, dirt, dust, bitumen, rust, loose particles and foreign matter.

When using abrasive blasting equipment, all work shall be shielded for the protection of the public.

Welded wire fabric reinforcement shall be installed in accordance with the plans.

Adequate measures shall be taken by the Contractor to prevent concrete chips, tools and/or materials from entering into adjacent roadway lanes or dropping to areas below the structure. All debris shall be promptly swept up and removed from the Site. All materials removed shall be satisfactorily disposed of by the Contractor.

Vertical surfaces of concrete members shall be formed using forms coated with a plastic or similar film to preclude the use of form release agents. Forms and support system shall be properly designed in accordance with Article 6.01.03. Forms shall be so designed that placement access shall be allowed at the top of each respective formwork assembly for contiguous void areas.

The minimum ambient and patch area surface temperature shall be 45°F and rising at the time of concrete installation.

No bonding compounds shall be used before or during the placement of this concrete material. Concrete surfaces against which this material is to be placed shall be sound, tight, and thoroughly roughened. The exposed concrete surfaces shall be dampened with fresh water immediately prior to placement of the fresh concrete by “hosing” down the areas behind the forms as thoroughly as possible.

Placement of the fresh concrete shall be maximum height lifts possible under the circumstances and all freshly placed concrete shall be consolidated during placement with adequately sized and effective vibrators.

Curing Concrete:

Concrete shall be cured by leaving forms on for seven (7) days.

Following curing and stripping, the exposed faces of new concrete shall be finished off with the use of the appropriate tools to blend in the physical appearance to the surrounding areas as much as possible.

Cured patches shall be sounded by the Engineer to detect the presence of any hollow spots. Such spots shall be removed and replaced by the Contractor at their expense until a patch acceptable to the Department is in place.

Method of Measurement:

Class “S” Concrete shall be measured by the actual volume in cubic yards of concrete placed and accepted by the Engineer. Welded wire fabric reinforcement and reinforcing steel will be measured for payment under other Contract items.

Basis of Payment:

“Class “S” Concrete” will be paid for at the Contract unit price per cubic yard, complete in place, which price shall include providing scaffolding or other access for the Engineer’s inspection, sandblasting, cleaning, reinforcement splices, forming, placing, curing, stripping and finishing new concrete, debris shields, and all materials, equipment, tools, labor and clean-up incidental thereto.

Welded wire fabric reinforcement and reinforcing steel, if required, will be paid for under the item “Deformed Steel Bars.”

Pay Item	Pay Unit
Class “S” Concrete	c.y.

ITEM #0601318A - PARTIAL DEPTH PATCH

Description:

Work under this item shall consist of the removal of spalled, delaminated or otherwise deteriorated concrete from existing bridge decks, concrete slabs, approach slabs and headers by pneumatic hammers or hydro-demolition methods, and replacement with fast setting patching material as shown on the plans, as directed by the Engineer and specified herein.

Where ordered by the Engineer, work under this item shall also include inspecting the underside of the deck concrete for popouts caused by the removal of deteriorated concrete.

Work under this item shall also include the furnishing and installation of wire ties for reinforcing bar and vertical supports on inadequately supported or vibrating reinforcing steel within deck patch areas, as ordered by the Engineer.

Materials:

The materials shall meet the following requirements:

- 1) **Patching Material:** The patching material shall be a concrete composed of a quick setting cement, fine aggregate, coarse aggregate and water. This concrete shall harden within 40 minutes, and develop minimum compressive strengths of 1,000 psi within 1 hour after set and 3,000 psi within 3 days.

The Contractor shall design and submit a quick setting mix to the Engineer for acceptance. Said mix design shall meet the strength requirements noted above and shall attain a minimum of 2500 psi prior to allowing traffic on patched surfaces. The mix proportions and method of application shall be in accordance with the manufacturer's recommendations. Sources of supply of all the materials shall be clearly indicated.

Fine aggregate shall meet the requirements of Subarticle M.03.01-2.

The coarse aggregate shall meet the requirements of Subarticle M.03.01-1. The required grading shall be obtained by using 100% of No. 8 size coarse aggregate. Grading of the aggregate shall conform to the gradation for No. 8 stone in Article M.01.01.

Water shall meet the requirements of Subarticle M.03.01-4.

The quick setting cement shall be one of the following materials:

MasterEmaco T 415

BASF
23700 Chagrin Blvd.
Beachwood, OH 44122
216-839-7016
www.master-builders-solutions.basf.us

Perma Patch

Dayton Superior Corporation
7130 Ambassador Dr.
Allentown, PA 18106
800-745-3707
www.daytonsuperior.com

Rapid Set DOT Cement

CTS Cement Manufacturing
12442 Knott Street
Garden Grove, CA 92841
800-929-3030 ext 188
www.gkao@ctscement.com

Speed Crete Green Line

Tamms Industries
730 Casey Ave.
Wilkes-Barre, PA 18702
800-218-2667
www.dpproducts.com/products/tamms.html

Fastcrete

Silpro Corporation
2 New England Way
Ayer, MA 01432
800-343-1501
www.silpro.com/products/fastcrete.shtml

Gypsum Based Materials will not be allowed.

Construction Methods:

Removal of concrete for partial depth patch will be performed by one of two methods: Hammer Demolition or Hydro-demolition. Prior to beginning any work, the Contractor shall provide submittals outlining intended method, as defined herein.

- 1) Inspection of the Deck: Before any existing concrete is removed, the Contractor shall provide the Engineer clear access to the bridge deck. During this time, the Engineer will perform an inspection of the structural slab and will designate areas where concrete removal shall be required. It shall be the responsibility of the Contractor to arrange the construction schedule so that the required operations may be performed without causing delay to the work.

No operations will be performed by the Engineer until after the following construction work has been completed:

- a) The existing bituminous overlay or concrete wearing course, if present, has been removed.

b) The existing waterproofing system, if present, has been removed.

Note: The removal of this material will be paid for under other applicable items.

It shall be the responsibility of the Contractor to inform the Engineer, in writing, of the date that a structure will be available for inspection operations. Notification shall be given to the Engineer at least 7 days prior to the date that the area in question will be in a condition acceptable to the Engineer.

The Contractor is hereby informed that the following time period will be necessary to perform the required inspection operations:

One working day with suitable weather conditions per each six thousand (6,000) square feet, or portion thereof, of deck area.

The Contractor will not be allowed to do any further work to the structure, until all necessary inspection operations have been performed, unless given permission by the Engineer.

The Contractor shall include any costs related to the allowance for this inspection in the general cost of the work.

- 2) Hammer Demolition: The maximum allowable noise level caused by equipment used for the removal of deck concrete shall not exceed 90 decibels on the "A" weighted scale, as measured at the nearest residence or occupied building. The Contractor shall demonstrate, to the satisfaction of the Engineer, that the equipment will meet this requirement before the use of such equipment will be allowed.

The weight of pneumatic hammers when used shall not exceed 15 pounds for concrete removal above the top reinforcing steel nor 15 pounds for concrete removal below the top reinforcing steel.

- 3) Hydro-Demolition Water and Equipment: All hydro-demolition equipment shall be capable of selectively removing spalled, delaminated or otherwise deteriorated concrete and cleaning the existing reinforcing steel of all rust and corrosion products by use of high-velocity water jets acting under continuous automatic control.

The hydro-demolition equipment shall consist of filtering and pumping units operating in conjunction with a remote-controlled robotics device.

All hydro-demolition equipment shall be equipped with an angled and rotating water nozzle to prevent interference of the existing reinforcing steel with the removal of concrete.

The maximum allowable noise level caused by equipment used for the removal of deck concrete shall not exceed ninety (90) decibels on the "A" weighted scale, as measured at the nearest residence or occupied building. The Contractor shall demonstrate, to the

satisfaction of the Engineer, that the equipment will meet this requirement before the use of such equipment will be allowed.

The make and model numbers of hydro-demolition equipment shall be submitted for acceptance by the Engineer. No hydro-demolition work shall be initiated until this acceptance is granted.

The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent traffic lanes in the vicinity of the removal and cleanup operations.

Water used for the hydro-demolition shall be potable.

The Contractor is advised that the withdrawal of more than 50,000 gallons of water per day from a single source other than from a municipal water system shall require a diversion permit issued by the Department of Energy and Environmental Protection, Water Resources Unit, in accordance with the Connecticut Water Diversion Policy Act PA 84-402, CGS Sections 22a-365 through 22a-378.

- 4) Hydro-Demolition Drainage Runoff Control: At least 2 weeks prior to the planned initiation of hydro-demolition operations, the Contractor shall submit to the Engineer for acceptance a comprehensive plan for the hydro-demolition operation. This Hydro-Demolition Plan shall include the following:
- a) Equipment
 - b) Containment
 - c) Filtration
 - d) Location of trial areas
 - e) Disposal of hydro-demolition runoff and concrete debris in conformance with these specifications

The Plan shall ensure that all concrete debris and particulate matter will be removed from hydro-demolition runoff water prior to its release to the environment.

The Plan shall include provision for the concurrent vacuuming of all runoff water at the immediate vicinity of the hydro-demolition operation. Runoff water shall be completely contained and vacuumed into a suitably sized water tight mobile tank for transport to a disposal site sedimentation basin acceptable to the Engineer.

Hydro-demolition operations shall proceed only with the simultaneous operation of a runoff water vacuum pickup in the immediate area of the hydro-demolition operation. Runoff water shall not be allowed to flow across adjacent travel lanes, across bridge joints nor through any existing bridge drainage system.

The size and location of the disposal site sedimentation basin shall be detailed in the Hydro-Demolition Plan. The sedimentation basin shall be properly sized so that uncontrolled overflow does not occur. At the conclusion of hydro-demolition operations,

the sedimentation basin and all concrete debris shall be removed and the area restored to its original condition.

The Plan shall additionally conform to all applicable requirements of Section 1.10 Environmental Compliance of the Standard Specifications.

The acceptance by the Engineer of the Hydro-Demolition Plan shall in no way relieve the Contractor of any responsibility for its safe and effective performance.

- 5) Calibration and Testing of Hydro-Demolition Equipment: A trial area will be designated by the Engineer to demonstrate that the equipment, personnel and methods of operation are capable of producing satisfactory results. The trial area will consist of 2 patches, each of approximately 20 square feet, one area of deteriorated or defective concrete and one area of “sound” concrete as determined by the Engineer.

Area of sound concrete is defined as: An area free from chemical defects, delamination, spalling, cracks, etc.

In the “sound area of concrete,” the equipment shall be programmed to remove concrete to a depth 1 inch \pm 1/4 inch below the top reinforcing steel mat.

After completion of the sound concrete test area, the equipment shall be located over the deteriorated or defective concrete and, using the same parameters as for sound concrete removal, shall remove all deteriorated or defective concrete. If a satisfactory result is obtained, these parameters may be used as a basis for production removal.

If, after calibrating the hydro-demolition equipment and beginning removal operations in a particular zone or area, insufficient removal of concrete is observed, in the opinion of the Engineer, the Contractor shall recalibrate the hydro-demolition equipment for that zone or area to the satisfaction of the Engineer.

- 6) Removal of Deteriorated Concrete: All deteriorated concrete designated for removal under this construction item shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area to be repaired will be delineated by the Engineer and suitably marked. Where several areas to be repaired are very close together, the Engineer may combine these individual patches into a large area. The outlines of each such area shall first be cut to a depth of 1/2 inch with a powersaw capable of making straight cuts prior to pneumatic demolition. In the event that reinforcing steel is encountered within the upper 1/2 inch depth during sawing operations, the depth of saw-cut shall immediately be adjusted to a shallower depth so as not to damage the steel bars. If so directed by the Engineer, saw cutting shall again be carried down to the 1/2 inch depth at other locations of repair provided reinforcing steel is not again encountered. Where over-breakage occurs resulting in a featheredge, the featheredge shall be squared up to a vertical edge in an acceptable manner. Where sawing is impractical, the area shall be outlined by chisel or other acceptable means.

All deteriorated concrete shall be removed by pneumatic hammers or hydro-demolition methods.

The depth of concrete removal shall be at least 1 inch below the top reinforcing steel mat but shall be such as to include all spalled, delaminated, or otherwise deteriorated concrete. The Engineer will be the sole determiner of what constitutes deteriorated concrete, using sounding methods or other evaluation measures.

Within 1 hour following the initiation of a concrete removal operation in any patch area, all loose concrete debris shall be removed, followed by water flushing of the existing concrete bonding surface to completely remove all traces of concrete debris and cement residue so that rebonding to the surface of the remaining sound concrete will be prevented. If it is not convenient to clean and flush the patch area within this time frame, all steel reinforcing and concrete bonding surfaces shall be cleaned subsequently by high pressure water blasting at a nozzle pressure not less than 3,000 psi with a sufficient volume to completely remove all rebonded debris and laitance.

Where the existing reinforcing steel is damaged or corroded, it shall be cut out and replaced with new reinforcing steel of the same size. Any sound reinforcing steel damaged during the concrete removal operations, shall be repaired or replaced by the Contractor at its expense, as directed by the Engineer. New steel shall be attached beneath or beside existing steel with a minimum splice length as indicated on the plans, or as directed by the Engineer. The concrete shall be removed to a minimum depth of 1 inch below the new steel.

- 7) Surface Preparation: Sound reinforcing steel which is in the proper position in the slab shall be left in place and cleaned of all concrete, the smaller fragments to be removed with hand tools in patch areas where pneumatic hammers were used.

Reinforcing bar wire ties and vertical supports shall be installed on inadequately supported or vibrating reinforcing steel, as directed by the Engineer.

The concrete surface and reinforcing steel to receive patching material shall be either sandblasted or water blasted, followed by air blasting in order to remove all loose particles and dust. All blasting operations shall be performed using techniques acceptable to the Engineer, taking care to protect all pedestrians, traffic, and adjacent property. All compressed air sources shall have properly sized and designed oil separators attached and functional to allow delivered air at the nozzle to be oil-free. The patch area shall be cleaned of all additional loose or powder-like rust, oil, solvent, grease, dirt, dust, bitumen, loose particles, and foreign matter just prior to patching.

If the patch area was not cleaned and flushed with clean water immediately following hydro-demolition, or if run-off from a nearby hydro-demolition operation was allowed to travel through the previously cleaned and flushed patch surface, all affected concrete and steel reinforcing bonding surfaces shall be water blast cleaned at a nozzle pressure not less

than 3,000 psi as directed by the Engineer, to assure that all remaining bond inhibiting laitance is completely removed.

The entire concrete surface to be patched shall be dampened. All excess free water shall be removed from the patch area.

- 8) Mixing, Placing, and Finishing: Unless a winter operations plan has been submitted to the Engineer by the Contractor, mixing and placing concrete shall only take place when the ambient temperature is above 35°F or per manufacturer's recommendations, whichever is higher. All mixing shall be accomplished by means of a standard drum-type portable mixer. A continuous type mobile mixer may be used if permitted by the Engineer. The Contractor shall calibrate the mobile mixer under supervision of the Engineer. Calibration shall be in accordance with the applicable sections of ASTM method C685. The total mix shall be limited to the quantity that can be mixed and placed in 15 minutes. The concrete mix shall be spread evenly and compacted to a level slightly above the pavement surface. Vibration, spading or rodding shall be used to thoroughly compact concrete and fill the entire patch area. Where practical, internal vibration shall be used in cases where concrete has been removed below the reinforcing steel. Hand tamping shall be used to consolidate concrete in smaller patches, including popouts.

Vibrating plates or vibrating screeds shall be used on the surface of all patches for strike off and consolidation. After the concrete has been spread evenly and compacted to a level slightly above the pavement surface, the vibrating plate or screed shall be drawn over the surface at a uniform speed without stopping, in order to finish the surface smooth and even with adjacent concrete.

The surface shall be float finished.

Finishing operations shall be completed before initial set takes place.

Cured patches, having a hollow sound when chain dragged or tapped, (indicating delamination), shall be replaced by the Contractor at its expense until a patch acceptable to the Engineer is in place.

- 9) Tolerances in Finished Patched Surfaces: The surface profile of the patched area shall not vary more than 1/8 inch in a distance of 10 feet, when a 10 foot long straightedge is placed on the surface at any angle relative to the centerline of the bridge. Humps in the patch that exceed the 1/8 inch tolerance shall be ground down by acceptable machinery. Sags or depressions in the surface of the patch area that exceed the 1/8 inch tolerance shall be repaired by removal of the concrete in the depression over an area determined by the Engineer to a depth of 1 inch and repaired in the previously described manner.
- 10) Underside of Bridge Deck Treatment: The Engineer will examine the underside of the bridge deck for popouts caused by the removal of deteriorated concrete. The exposed reinforcing steel shall be coated with epoxy resin where ordered by the Engineer. The

exposed reinforcing steel, if any, which is to receive the epoxy resin coating material shall be cleaned of all loose or powder-like rust, oil, dust, dirt, loose particles, and other inhibiting matter just prior to coating.

The epoxy resin shall be mixed in accordance with the manufacturer's instructions. Also in accordance with the manufacturer's instructions, 2 coats of the mixed material shall be applied in uniform coats of approximately 2 to 3 mils dry film thickness each.

If the popouts extend beyond the bottom layer of reinforcing steel, the popouts shall be repaired as ordered by the Engineer.

- 11) Test Cylinders: The Contractor shall make and perform compressive strength tests on representative cylinders under the supervision of the Engineer in accordance with ACI requirements. The dimensions, type of cylinder mold and number of cylinders will be specified by the Engineer. Traffic shall not be permitted on patched surfaces until the patch material attains a strength of 2500 psi, as determined by breaks of the test cylinders.

A portable compression testing machine shall be provided by the Contractor and available on site for cylinder testing. All testing and equipment shall conform to ASTM C39.

Note: The compression machine must be calibrated in accordance with the provisions of Section 5, ASTM C39.

- 12) Time Schedule: Work under this item begun on any specific bridge during a construction season shall be completed, at least, to include this item, membrane waterproofing and placing of first course of wearing surface as soon as possible and specifically before the beginning of the construction season's winter shutdown.

All work shall proceed as required by the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications elsewhere within the Contract.

Method of Measurement:

This work will be measured for payment by the actual volume in cubic feet of patching material used in acceptable concrete deck patches, except where the Engineer determines that the Contractor has unnecessarily removed sound concrete. Where sound concrete has been unnecessarily removed, the replacement concrete will not be measured for payment. Providing safe access for delineation and inspection of the performed repairs will not be measured for payment.

Replacement of deteriorated epoxy rebar and repair of epoxy coated rebar at popouts, if required, will be measured for payment under other Contract items.

Basis of Payment:

This work will be paid for at the Contract unit price per cubic foot of deck concrete repaired under "Partial Depth Patch," complete and accepted in place, which price shall include removal of deteriorated concrete, surface preparation of patch areas, concrete replacement, the furnishing

and installation of reinforcing bar wire ties and vertical supports for inadequately supported existing reinforcing steel, inspection access, all materials, equipment, including the portable compression testing machine required for the testing of the repair material, tools, labor and work incidental thereto.

Replacement of deteriorated epoxy rebar, if required, will be paid for under the item “Deformed Steel Bars – Epoxy Coated.”

Epoxy resin coating of exposed epoxy rebar at the underside of the deck, if required, will be paid for under the item “Clean and Coat Exposed Reinforcing Steel.”

Pay Item	Pay Unit
Partial Depth Patch	c.f.

ITEM #0602910A - DRILLING HOLES AND GROUTING DOWELS

Description: Work under this item shall consist of drilling holes in concrete and grouting dowels at the locations shown on the plans, in accordance with the plans, the manufacturer's recommendations, and as directed by the Engineer. For the purposes of this specification, a dowel is defined as a reinforcing bar.

Materials: The chemical anchoring material shall conform to Subarticle M.03.07.

Construction Methods: Before fabricating any materials, the Contractor shall submit manufacturer's specifications and installation for the chemical anchoring material to the Engineer for review in accordance with Article 1.05.02.

Holes for the dowels shall be located as shown on the plans. The holes shall clear the existing reinforcement and provide the minimum cover as shown on the plans. A pachometer shall be used to locate existing reinforcing steel. If existing reinforcing is encountered during the drilling operation, the holes shall be relocated and the uncompleted holes shall be filled with the chemical anchoring material and finished smooth and flush with the adjacent surface.

The depth and diameter of each hole shall conform to the manufacturer's recommendations for the diameter of the dowel being anchored. If the depth and diameter of a hole are not shown, the hole shall conform to the manufacturer's recommendations for the diameter of the dowel being anchored such that the grouted dowels will be able to develop, in tension, 100 percent of its specified yield strength.

Hole drilling methods shall not cause spalling, cracking, or other damage to the existing concrete. The weight of the drill shall not exceed 13 lbs. Those areas damaged by the Contractor shall be repaired by him in a manner suitable to the Engineer and at no expense to the State.

Prior to placing the chemical anchoring material in the holes, the holes shall be cleaned of all dirt, moisture, concrete dust and other foreign material. The dowel and the chemical anchoring material shall be installed in the holes in accordance with the chemical anchoring material manufacturer's recommendations.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the area below, which may result in damage to any existing construction or to adjoining property. Should any damage occur to the structure as a result of the Contractor's operations, the Contractor shall make repairs at his own expense. The repair work shall be approved in advance and shall be of a quality acceptable to the Engineer.

Method of Measurement: This work will be measured for payment by the actual number of drilled holes in which dowels are embedded and accepted. Reinforcing steel will be measured for payment under other Contract items.

Basis of Payment: This work will be paid for at the contract unit price each for "Drilling Holes and Grouting Dowels," which price shall include drilling and preparing holes, furnishing and installing the chemical anchoring material in the holes and all material, equipment, tools and labor. incidental thereto.

Reinforcing steel will be paid for under the item "Deformed Steel Bars."

<u>Pay Item</u>	<u>Pay Unit</u>
Drilling Holes and Grouting Dowels	e.a.

ITEM #0602971A – DEBRIS SHIELD

Description:

Work under this item shall consist of the design, installation, maintenance, dismantling as required, relocation as required, and removal of a temporary debris shield system as shown on the plans or as directed by the Engineer. The debris shield system shall be any type of adequately designed system which the Contractor elects to build to satisfy, and which does satisfy, the condition that construction debris and other materials are positively prevented from dropping onto the water or ground below the work area, as indicated on the plans or as directed by the Engineer.

Materials:

Any material or combination of materials may be used to construct the debris shield system provided they are properly designed for the purpose intended. Systems utilizing proprietary components shall conform to the manufacturer's specifications and project specifications. The parts list shall be furnished for the proprietary system and the Contractor shall provide the material certificates for the parts.

Construction Methods:

The debris shield shall be safely designed and constructed as necessary for proper performance of the work. When installed, all elements of the debris shield shall be located above the flood elevation indicated on the plans.

It shall be the Contractor's responsibility, as part of this item of work, to design and detail the debris shield to conform to all Federal, State, and Local laws and regulations, as well as the requirements contained here in this Specification.

The Contractor shall submit working drawings, stamped by a Professional Structural Engineer registered in the State of Connecticut, in accordance with Subsection 1.05.02; Plans, Working Drawings and Shop Drawings, of all proposed debris shielding to the Engineer for his review and approval prior to installation. The working drawings shall include design and details of the debris shield including all connections, brackets, and fasteners. The various components of the debris shield shall be designed for the anticipated weight of all personnel, material, equipment, and debris to be supported, based on the Contractor's method and sequence of work, but in no case shall be designed for less than 100 pounds per square foot. Vertical elements of the debris shield shall be designed for anticipated loads including wind, or a minimum of 30 pounds per square foot, whichever is higher. The calculations shall consider the loading effects from the debris shield on the bridge structure in addition to the design of the debris shield itself. The furnishing of such plans shall not serve to relieve the Contractor of any part of his responsibility for the safety of the work or for the successful completion of the project.

The debris shields shall be placed and secured against all applicable loads, including wind. If, in the opinion of the Engineer, the shields are not secure, the Contractor shall remove and install them to the satisfaction of the Engineer.

The debris shield shall be installed below any active work area as required on the plans, prior to commencing repair work at that location. While in place, the debris shield shall serve to prevent concrete chips, patching material, tools and/or any other materials from dropping into the waterway. Once the repair work in a particular area has been completed and accepted, the debris shield shall be dismantled and/or relocated to facilitate the Contractor's work at other locations. There will be no payment for dismantling and relocating the debris shield system.

Unless otherwise ordered by the Engineer, all parts of the debris shield shall be removed upon completion of the work for which it was provided.

Method of Measurement:

Debris Shield will be at the contract lump sum price for "Debris Shield."

Basis of Payment:

This work will be paid for at the contract lump sum price for "Debris Shield", which price shall include designing, installing, maintaining, dismantling as required, relocating as required, and removing, the temporary debris shield system, and all equipment, tools, and labor incidental thereto.

A schedule of values for payment shall be submitted to the Department for review and comment prior to payment.

<u>Pay Item</u>	<u>Pay Unit</u>
Debris Shield	l.s.

ITEM #0602980A - CLEAN AND COAT EXPOSED REINFORCING STEEL

Description: Work under this item shall consist of the removal of loose or delaminated concrete from the underside of existing bridge decks or stay-in-place forms by mechanical methods and the cleaning and coating of exposed reinforcing steel with epoxy resin, as directed by the Engineer.

Materials:

1. Epoxy Resin: The epoxy resin shall be a 2 component, moisture tolerant system with a minimum solids content of 65%, which meets the following requirements:

a) Physical Requirements of (Mixed) Epoxy Resin System: A mixture of both components in the proportions recommended by the manufacturer shall have the following properties and meet the following test requirements:

Viscosity – approximately 2000 centipoises

Pot life – approximately 30 minutes

Modulus of Elasticity – 190 ksi (ASTM D638)

Resistance to Abrasion – 0.03 gm loss after 1000 cycles (Taber Abrader)

Resistance to Cracking – No splitting or loss of bond of a 2.5 mil thickness with 1/8 in mandrel (ASTM D522)

b) Packaging and Marking: The 2 components of the epoxy resin system furnished under these specifications shall be supplied in separate containers, which are non-reactive with the materials contained therein. The size of the container shall be such that the recommended proportions of the final mixture can be obtained by combining 1 container of 1 component with 1 or more whole containers of the other component.

Containers shall be identified as base polymer and reacting system, and shall show the mixing directions and usable temperature range as defined by these specifications. Each container shall be marked with the name of the manufacturer, the lot or batch number, the date of packaging, pigmentation if any, and the quantity contained therein in pounds and gallons.

Printed instructions from the manufacturer for mixing and applying the material shall be included.

Potential hazards shall be so stated on the package in accordance with the Federal Hazardous Products Labeling Act.

2. Sampling: A representative sample of each component sufficient for the test specified shall be taken by a Department representative either from a well-blended bulk lot prior to packaging or by withdrawing 3 fluid ounce samples from no less than 5% by random selection of the containers comprising the lot or shipment. Unless the samples of the same

component taken from containers show evidence of variability, they may be blended into a single composite sample to represent that component. The entire lot of both components may be rejected if samples submitted for testing fail to meet any requirements of this specification.

3. Control of Materials: A Materials Certificate will be required in accordance with Article 1.06.07, certifying the conformance of the epoxy resin to the requirements set forth in this specification.

Construction Methods:

1. Inspection of the Deck Underside: Before any existing concrete is removed from the underside of the deck, the Contractor will provide the Engineer clear access to the underside of the deck. During this time, the Engineer will perform an inspection of the deck and designate areas where concrete removal is required. The inspection will utilize visual assessment as well as sounding for delamination (hammer tapping).

The Contractor must inform the Engineer, in writing, of the date that the bridge deck will be available for inspection operations and the method which will be used for access. Notification shall be given to the Engineer at least 7 days prior to the date so that the Engineer can plan accordingly and verify that the proposed method of access is acceptable.

The Contractor will not perform any work to the deck, until all necessary inspection operations have been performed, unless given permission in writing by the Engineer. The Contractor shall include the time required for inspection in its overall construction schedule and shall include all costs associated with providing access for the Engineer in the bid unit price.

2. Removal of Deteriorated Concrete: All deteriorated concrete designated for removal under this item, shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area of concrete to be removed will be delineated by the Engineer and suitably marked. The Engineer will be sole determiner of what constitutes deteriorated concrete, using sounding methods or other evaluation measures at his discretion.
Hand tools shall be used first to remove loose and hollow sounding concrete. If the concrete cannot be removed with hand tools, the Engineer may authorize the use of pneumatic hammers. The weight of pneumatic hammers, when used shall not exceed 15 pounds. The Contractor shall provide structurally adequate shields approved by the Engineer for protection of waterways, railways, roadways, sidewalks, parking lots or any other areas accessible to the public, which are in the vicinity of the removal operations.
3. Cleaning Exposed Reinforcing Steel: All exposed reinforcing steel on the underside of the deck shall be cleaned and coated, regardless of whether the Contractor exposed it or it was already exposed at the beginning of the Project. The exposed reinforcing steel shall be cleaned of all concrete fragments, loose or powder-like rust, oil, dust, dirt, loose particles, and other bond inhibiting matter. Cleaning methods shall utilize wire brushing at a minimum, but may require more aggressive methods as recommended by the coating

manufacturer or as directed by the Engineer. Cleaning shall be done just prior to coating and shall finish with the cleaned surfaces being wiped down to remove the remaining dust.

4. Coating Exposed Reinforcing Steel: The epoxy resin shall be mixed and applied in accordance with the Manufacturer's instructions. Only the reinforcing steel shall be coated. The surrounding concrete shall not be coated. Care shall be taken to coat all exposed portions of each bar's perimeter and all exposed surfaces where bars overlap or are in contact with each other.

Method of Measurement: This work will be measured for payment by the actual number of linear feet of reinforcing steel cleaned and coated with epoxy resin material and approved by the Engineer. The length of coated reinforcing steel shall be measured along the exposed face of the bar. Where bars are adjacent to each other, the length of each bar shall be measured. No deduction in length shall be made where bars overlap.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Clean and Coat Exposed Reinforcing Steel," complete and accepted, which price shall include all materials, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Clean and Coat Exposed Reinforcing Steel	l.f.

ITEM #0819002A - PENETRATING SEALER PROTECTIVE COMPOUND

Description:

Work under this item shall consist of cleaning concrete surfaces of dirt, dust and debris, and furnishing and applying a clear, penetrating sealer where shown on the plans, to provide a hydrophobic barrier against the intrusion of moisture. This work also includes furnishing, installing and removing platforms, scaffolding, ladders and other means of access as well as shields, as required, to protect adjacent areas from overspray. Penetrating sealer shall not be applied to concrete surfaces that have been previously treated with coatings or curing compounds that would hinder penetration of the sealer into the concrete.

Materials:

The penetrating sealer shall be a single component, 100% silane or silane siloxane from the list of materials below. The material shall be selected in anticipation of the expected ambient and surface temperature at the time of installation.

The following products may be used when ambient and surface temperatures are 40°F and above:

SIL-ACT ATS-100 (Silane)
Advanced Chemical Technologies, Inc.
9608 North Robinson Ave.
Oklahoma City, OK 73114
405-843-2585
www.advchemtech.com

Armor SX 5000 EXT-100 or SX 5000 WB (Silane Siloxane)
Foundation Armor, LLC.
472 Amherst St. STE 14
Nashua, NH 03063
866-306-0246
www.foundationarmor.com

Aquinil Plus 100 (Silane)
ChemMasters
300 Edwards Street
Madison, OH 44057
440-428-2105, 800-486-7866
www.chemmasters.net/Aquanil100.php

The following product may be used when ambient and surface temperatures are 20°F and above:

Certi-Vex Penseal 244 100% (Silane)
Vexcon Chemicals
7240 State Road
Philadelphia, PA 19135
888-839-2661
www.Vexcon.com

Construction Methods:

Submittals: The Contractor shall submit to the Engineer Safety Data Sheets (SDS) and product literature for the selected product. The literature shall include written instructions how to apply the product to vertical and horizontal surfaces, and where required, overhead surfaces.

The Contractor shall submit to the Engineer, in accordance with Article 1.05.02, written procedures for cleaning the concrete surfaces. The submittal shall include proposed equipment and materials and shall address how adjacent traffic and other areas shall be protected from dust, debris and overspray during the cleaning and application processes. Where the sealer is to be applied to parapets before pavement is placed, the submittal shall address protecting the deck and curb to which membrane waterproofing will be applied. Should the membrane already be present, the submittal shall address protecting the membrane. It shall also indicate how vegetation shall be protected from overspray. The submittal shall address the conditions under which work may proceed, including wind speed, temperature and precipitation. It shall also include procedures to be followed to protect the work should unfavorable weather conditions occur before the product has been absorbed.

The Contractor shall inspect the surfaces to be sealed to identify surface cleaning needs before submitting the procedures. The Contractor shall identify conditions that need repair or surfaces that may require special attention or cleaning procedures. Such observations shall be addressed in the written procedures.

Surface Preparation: Concrete surfaces to which penetrating sealer will be applied shall be dry, clean and free of grease, oil and other surface contaminants. New concrete and newly placed repair concrete shall be allowed to cure for at least 28 days before applying sealer. After rain or water cleaning, allow existing concrete surfaces to dry for at least 8 hours before applying sealer. Dry surfaces may be cleaned by sweeping with brushes or brooms, and blowing clean with oil-free, compressed air. The Contractor shall take care not to damage the concrete surface finish during cleaning operations. Care shall be taken so that cleaning methods do not damage joint sealant or other components of the structure.

Application: Application of the sealer can only begin after the Engineer evaluates the concrete surfaces for cleanliness and moisture, and determines that conditions are appropriate for application.

The sealer shall saturate the concrete surface with a rate of application of 200 square feet per gallon of sealer. The dispersion shall run six to eight inches down a vertical surface from the spray pattern. The maximum run-down is 12 inches. The Contractor shall monitor and record the number of square feet per gallon of sealer used to verify that the required application rate is being met. Additional sealer may be needed if surfaces are porous, rough or textured.

The Engineer will inspect the concrete surface during application and after the sealer has had adequate time to penetrate. As a test, water sprayed from a bottle on the sealed surface shall bead up and not be absorbed. Should water be absorbed into the concrete at a test area, additional areas shall be tested to determine which areas should receive additional application of sealer. The Contractor shall apply additional sealer to the identified areas until absorption of water is prevented.

Method of Measurement:

This work will be measured for payment by the actual number of square yards of concrete, coated completely and accepted, within the designated limits. The area will be measured once, regardless of the number of applications required.

Basis of Payment:

This work will be paid for at the Contract unit price per square yard for “Penetrating Sealer Protective Compound,” complete, which price shall include all equipment tools, labor and materials, incidental thereto, including the preparation of the concrete surfaces and proper disposal of debris.

Pay Item	Pay Unit
Penetrating Sealer Protective Compound	s.y.

ITEM #0822005A - TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)

ITEM #0822006A – RELOCATED TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)

Description:

Work under this item shall consist of furnishing, installing, relocating and removing temporary precast concrete barrier curb (typical 24” wide curbing) for use on structures as shown on the plans or as directed by the Engineer. This work shall also include the drilling, grouting, and later removal of anchor bolts, and the cleaning and subsequent grouting and sealing of anchor bolt holes after the barrier is removed.

Materials:

1. The barrier shall be precast concrete conforming to Article 8.21.02-1.
2. Manufacturer identification and casting date shall be permanently marked on each barrier unit by means of a non-corrosive metal or plastic tag in the location shown on the plan. When used barrier is furnished, the Contractor shall provide documentation stating from where the material came, what project it will be used on, the casting dates, and certification that the barrier conforms to all State requirements.
3. Reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.
4. Lifting hooks, keys, bolts, devices and attachments shall be of the size indicated on the plans or of a design satisfactory for the purpose intended as approved by the Engineer.
5. Anchor bolts shall conform to ASTM A307. Heavy hex nuts shall conform to AASHTO M291. The plate washers shall conform to AASHTO M223, Grade 50. The anchor bolts, nuts, and plate washers shall be hot-dip galvanized in accordance with AASHTO M232 and M111 as applicable. The ends of the anchor bolts shall be capable of threading into the inserts used to secure in the precast concrete beams.
6. Loop bars shall be bent from smooth bar steel conforming to AISI 1018 (Hot-rolled). Ends shall be hot-dip galvanized in accordance with AASHTO M111.
7. Threaded connection rods shall be steel conforming to AASHTO M 314 (ASTM F1554) Grade 55. The rod shall be threaded for a minimum of 4 inches at each end. Plain steel washers shall be manufactured in accordance with ANSI B18.22. Heavy hex nuts shall conform to AASHTO M291 for Class 10S. The threaded connection rods, washers, and nuts

shall be hot-dip galvanized after fabrication in accordance with the requirements of Class C of AASHTO M232.

8. The chemical anchor material shall be a resin compound specially formulated to secure bolts in concrete against tension pull-out. The Contractor shall select the chemical anchor material in accordance with Article M.03.07.
9. Non-shrink grout shall conform to subarticle M.03.05.
10. Barrier shall be accepted on the basis of the manufacturer's certification, as defined in Article M.08.02-4.
11. Sealant for patching holes in bituminous overlays shall be a cold-applied bituminous sealer conforming to M.08.01-15.
12. Anchor Bolts/Threaded Connection Rods-Certified Test Reports: The Contractor shall submit a Certified Test Report and a Materials Certificate in conformance with Article 1.06.07 and a sample of all anchor bolts, threaded connection rods, nuts, and washers for testing prior to their installation. The Contractor shall not install any anchor bolts or threaded connection rods prior to receipt of the approved test results and approval by the Engineer.
13. Delineators shall conform to Article 8.22.02.

Construction Methods:

1. Fabrication: The barrier shall be precast concrete in conformance with the pertinent requirements of Article 8.21.02 and the plans, except that penetrating sealer protective compound is not required.
2. Installation: The barrier shall be placed as shown on the plans or as directed by the Engineer. The barriers shall be anchored to the concrete deck slab in accordance with the plans and the following:
 - a. Chemical Anchoring: This consists of drilling holes in concrete deck slabs, placing anchor bolts in the holes, and securing the bolts with a pre-approved chemical anchor material. Chemical anchoring is not permitted on prestressed concrete.

The Contractor shall submit the following to the Engineer for approval: type of drill, diameter of bit, method of cleaning holes, and method of placement of chemical anchor material.

Specifications and recommendations for the aforementioned may be obtained from the manufacturer of the chemical anchor material.

Drilling methods shall not cause spalling, cracking, or other damage to the concrete. Those areas damaged by the Contractor shall be repaired by him in a manner suitable to the Engineer and at no expense to the State.

Care shall be taken not to drill holes into or through structural steel.

The Contractor shall take the necessary precautions to prevent materials from falling onto the waterway below.

When reinforcing steel is encountered during the drilling of the holes, the Contractor shall attempt to angle the hole to by-pass the bar. If this cannot be accomplished, then the bar shall be drilled through.

The anchor bolts shall extend to the bottom of the holes and be hammer tapped to insure full penetration. The chemical anchor material shall be installed in accordance with the written directions supplied by the manufacturer of the chemical anchor material.

The barrier shall be anchored down by torquing the bolts "snug tight", which is defined as the tightness attained after several impacts from an impact wrench. No part of the bolt head shall project above the outer surface of the barrier.

3. Connection of Barrier Units: The barrier shall be joined together with threaded connection rods, washers, and heavy hex nuts in accordance with the plans.
4. Cutting of Anchor Bolts: protruding anchor bolts shall be saw cut off flush with the surface of the concrete deck. Any protrusion remaining after the bolts are cut shall then be ground down to flush with the surface of the deck. Contractor shall take every precaution to not create a space or hole during saw cutting and grinding. Should any space or hole below flush with the deck remain after grinding the space shall be filled in with non-shrink grout. At the Contractor's option, the anchor bolts may be pre-coated with a material recommended by the chemical anchoring material's manufacturer which will allow for complete removal of the anchor bolts.
5. Patching with Non-Shrink Grout: After removal of the barrier, holes in newly constructed concrete decks and threaded inserts shall be blown clean with an air jet and filled in with non-shrink grout. The non-shrink grout shall be mixed and placed in strict accordance with the manufacturer's directions. The non-shrink grout shall be finished flush with the deck surface. Allow grout to cure a minimum of 24 hours before placing sealant in any remaining hole in the bituminous wearing surface.

6. Delineators: Delineators shall be installed on top of the barrier in accordance with Article 8.22.03-3 and the plans.

General: The barrier shall be kept in good condition at all times by the Contractor during all stages of construction. Any damaged material shall be replaced by the Contractor at his expense.

7. When the barrier is no longer required, it shall be removed from the work site and become the property of the Contractor.
8. Relocation of Barrier: The Contractor shall relocate the barrier and its appurtenances to locations within the project limits as shown on the plans or as ordered by the Engineer.

Method of Measurement:

This work will be measured for payment along the centerline of the top of the concrete structure barrier and will be the actual number of linear feet of temporary concrete structure barrier furnished, installed and accepted.

Relocated temporary concrete barrier will be measured along the centerline of the top of the concrete barrier each time the barrier has been satisfactory relocated, as directed by the Engineer, including to and from the storage area. Storage of concrete barrier will not be measured for payment.

Relocation of the temporary precast concrete barrier curb to provide access to a project work area or for the convenience of the Contractor's operations will not be measured for payment.

Delineators will be measured in accordance with Article 12.05.04.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot for "Temporary Precast Concrete Barrier Curb (Structure)", complete in place, which price shall include all furnishing, transportation, initial installation, final removal, storage, materials, reinforcing steel, connection rods, and all equipment, tools, and labor incidental thereto. The cost of furnishing, installing, and cutting of anchor bolts shall also be included for payment under this item. Each temporary structure barrier will be paid for once regardless of the number of times it is used on the project. Any barrier units that become lost, damaged or defaced shall be replaced by the Contractor at no cost to the State.

The relocation of the temporary precast concrete barrier curb will be paid for at the contract unit price per linear foot for "Relocated Temporary Precast Concrete Barrier Curb (Structure)", which price shall include all transportation, materials, equipment, tools and labor incidental thereto.

Delineators will be paid for in accordance with Article 12.05.05.

Pay Item

Pay Unit

Temporary Precast Concrete Barrier Curb (Structure)
Relocated Temporary Precast Concrete Barrier Curb (Structure)

L.F.
L.F.

ITEM #0917010A – REPAIR GUIDERAIL

Description: Work under this item shall consist of the repair of newly installed guiderail. It shall be repaired in the locations originally installed and fabricated in conformity with the lines, designations, dimensions, and details shown on the plans or as ordered by the Engineer.

Materials: The material for guiderail shall meet the requirements as specified within the original applicable contract items.

When repairing guiderail, the Contractor shall reuse any undamaged existing guiderail elements, timber rail, wire rope, appropriate posts, delineators, lap bolts, and other hardware within the project limits as approved by the Engineer to repair the guiderail. The Contractor shall use new materials when any components of the existing railing are damaged or missing and cannot be obtained from other guiderail systems being removed or converted within the Project limits.

Construction Methods: The repair of guiderail shall be in accordance with contraction methods as specified within the original applicable contract items.

Guiderail, including end anchors, which has been installed in final condition and accepted by the Engineer, shall be eligible for reimbursement for repairs subject to the conditions described below. If multiple runs are to be installed in a single stage as indicated in the contract documents, determination for reimbursement shall be made when all runs within the stage are complete and accepted as previously described. On projects without designated stages, guiderail installations must be complete and serving the intended function as determined by the Engineer.

When newly installed guiderail is damaged by public traffic, the following conditions must be satisfied prior to reimbursement for payment;

1. The damage must have been caused solely by the traveling public.
2. The contractor shall provide satisfactory evidence that such damage was caused by public traffic. Such as accident reports obtained from the Connecticut Department of Public Safety, police agencies or insurance companies; statements by reliable, unbiased eyewitnesses; or identification of the vehicle involved in the accident.
3. The contractor shall attempt to collect the costs from the person or persons responsible for the damage and provide documentation of those efforts to the satisfaction of the Engineer.
4. If such evidence cannot be obtained, the Engineer may determine that the damage was not caused by the Contractor and reimbursement for payment is warranted.

This repair provision does not relieve the Contractor of the requirements of Section 1.07, any other contractual requirements for maintenance and protection of traffic and final acceptance and relief of responsibility for the project.

The contractor shall remain responsible for the safety and integrity of the guiderail system for the duration of the project. In the event the guiderail is damaged, the Contractor shall provide sufficient cones, drums and other traffic control devices to provide safe passage by the public. When ordered by the Engineer, the Contractor shall furnish replacement parts and immediately repair the guiderail, but in no case more than 24 hours after notification from the Engineer. In non-emergency situations, the guiderail shall be repaired within 72 hours. The repaired guiderail or anchorages, when completed, shall conform to these specifications for a new system. The Contractor shall be responsible for the removal and the proper disposal of all damaged material and debris.

Method of Measurement: Guiderail damaged solely by the traveling public will be measured for payment. Damage caused by the Contractor's equipment or operations will not be measured for payment.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for repair of guiderail will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the contract.

Basis of Payment: Repair of guiderail will be paid for in accordance with Article 1.09.04 as required to restore the rail to its full working condition in conformance with these specifications for a new system. There will be no payment for maintenance and protection of traffic for work associated with this item unless, in the opinion of the Engineer, the sole purpose of the maintenance and protection of traffic is for repair of the guiderail.

<u>Pay Item</u>	<u>Pay Unit</u>
Repair Guiderail	est. (est.)

ITEM #0950019A – TURF ESTABLISHMENT - LAWN

Description: The work included in this item shall consist of providing an accepted stand of grass by furnishing and placing seed as shown on the plans or as directed by the Engineer.

Materials: The materials for this work shall conform to the requirements of Section 9.50 of Standard Specification Form 817. The following mix shall be used for this item:

Turf Seed Mix:

In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed below. Other proposed mixtures must be approved by the ConnDOT Landscape Design office.

<u>Proportion (Percent)</u>	<u>Species Common name</u>	<u>Scientific name</u>
20	Kentucky Bluegrass Improved varieties	Poa pratensis
45	Red Fescue Improved varieties	Festuca rubra
35	Perennial Ryegrass Improved varieties	Lolium perenne

Construction Methods: Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 250 lbs. per acre. The seed shall be mulched in accordance with Article 9.50.03.

Method of Measurement: This work will be measured for payment by the number of square yards of surface area of accepted established grasses as specified or by the number of square yards of surface area of seeding actually covered and as specified.

Basis of Payment: This work will be paid for at the contract unit price per square yard for “Turf Establishment - Lawn” which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

Pay Item
Turf Establishment - Lawn

Pay Unit
S.Y.

ITEM #0969062A - CONSTRUCTION FIELD OFFICE, MEDIUM

Description: Under the item included in the bid document, adequate weatherproof office quarters with related furnishings, materials, equipment and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of CTDOT forces and others who may be engaged to augment CTDOT forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Furnishings/Materials/Supplies/Equipment: All furnishings, materials, equipment and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below:

Description \ Office Size	Medium
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	400
Minimum number of exterior entrances.	2
Minimum number of parking spaces.	7

Office Layout: The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on the building floor plan as provided by the Engineer.

Tie-downs and Skirting: Modular offices shall be tied-down and fully skirted to ground level.

Lavatory Facilities: For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by CTDOT personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and cold running water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the CTDOT and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel, wiring, outlets, etc., to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

- A. 120/240 volt, 1 phase, 3 wire
- B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
- C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
- D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
- E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
- F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
- G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
- H. After work is complete and prior to energizing, the State's CTDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
- I. Prior to field office removal, the CTDOT Office of Information Systems (CTDOT OIS) must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium and Large field office this shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. For an Extra-Large field office this shall consist of four (4) telephone lines: three (3) lines for phone/voice service and one (1) line dedicated for facsimile machine. The Contractor shall pay all charges.

Data Communications Facility Wiring: Contractor shall install a Category 6 568B patch panel in a central wiring location and Cat 6 cable from the patch panel to each PC station, Smart Board location, Multifunction Laser Printer/Copier/Scanner/Fax, terminating in a (Category 6 568B) wall or surface mount data jack. The central wiring location shall also house either the data circuit with appropriate power requirements or a category 5 cable run to the location of the installed data circuit. The central wiring location will be determined by the CTDOT OIS staff in coordination with the designated field office personnel as soon as the facility is in place.

For Small, Medium and Large field offices the Contractor shall run a CAT 6 LAN cable a minimum length of 25 feet for each CTDOT networked device (including but not limited to: smartboards and Multi-Function Laser Printer/Copier/Scanner/Fax) to LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. For an Extra-Large field office the Contractor shall run CAT 6 LAN cables from workstations, install patch panel in data circuit demark area and terminate runs with RJ45 jacks at each device location. Terminate runs to patch panel in LAN switch area. Each run / jack shall be clearly labeled with an identifying Jack Number.

The Contractor shall supply cables to connect the Wi-Fi printer to the Contractor supplied internet router and to workstations/devices as needed. These cables shall be separate from the LAN cables and data Jacks detailed above for the CTDOT network.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner/Fax, and smartboards listed below.

The installation of a data communication circuit between the field office and the CTDOT OIS in Newington will be coordinated between the CTDOT District staff, CTDOT OIS staff and the local utility company once the Contractor supplies the field office phone numbers and anticipated installation date. The Contractor shall provide the field office telephone number(s) to the CTDOT Project Engineer within 10 calendar days after the signing of the Contract as required by Article 1.08.02. This is required to facilitate data line and computer installations.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field Office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size Medium
	Quantity
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.	3
Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.	-
Personal computer tables (4 ft. x 2.5 ft.).	3
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1
Conference table, 3 ft. x 12 ft.	-
Table – 3 ft. x 6 ft.	-
Office Chairs.	4
Mail slot bin – legal size.	-
Non-fire resistant cabinet.	-
Fire resistant cabinet (legal size/4 drawer), locking.	1
Storage racks to hold 3 ft. x 5 ft. display charts.	-
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1
Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.	-
Case of cardboard banker boxes (Min 10 boxes/case)	1
Open bookcase – 3 shelves – 3 ft. long.	-
White Dry-Erase Board, 36" x 48" min. with markers and eraser.	1
Interior partitions – 6 ft. x 6 ft., soundproof type, portable and freestanding.	-
Coat rack with 20 coat capacity.	-
Wastebaskets - 30 gal., including plastic waste bags.	1
Wastebaskets - 5 gal., including plastic waste bags.	3
Electric wall clock.	-
Telephone.	1
Full size stapler 20 (sheet capacity, with staples)	2
Desktop tape dispensers (with Tape)	2
8 Outlet Power Strip with Surge Protection	4
Rain Gauge	1
Business telephone system for three lines with ten handsets,	-

Furnishing Description	Office Size Medium
	Quantity
intercom capability, and one speaker phone for conference table.	
Mini refrigerator - 3.2 c.f. min.	1
Hot and cold water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1
Microwave, 1.2 c.f. , 1000W min.	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*
Electric pencil sharpeners.	2
Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.	1
Small Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .	1
Large Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .	-
Field Office Wi-Fi Connection as specified below under <u>Computer Related Hardware and Software</u>	1
Wi-Fi Printer as specified below under <u>Computer Related Hardware and Software</u> .	1
Digital Camera as specified below under <u>Computer Related Hardware and Software</u> .	1
Video Projector as specified below under <u>Computer Related Hardware and Software</u> .	-
Smart Board as specified below under <u>Computer Related Hardware and Software</u> .	-
Infrared Thermometer, including annual third party certified calibration, case, and cleaning wipes.	1
Concrete Curing Box as specified below under Concrete Testing Equipment.	1
Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1

Furnishing Description	Office Size Medium
	Quantity
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1
First Aid Kit	1
Flip Phones as specified under <u>Computer Related Hardware and Software</u> .	-
Smart Phones as specified under <u>Computer Related Hardware and Software</u> .	-

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Computer Related Hardware and Software: The CTDOT will supply by its own means the actual Personal Computers for the CTDOT representatives. The Contractor shall supply the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors, and Smart Board(s) as well as associated hardware and software, must meet the requirements of this specification as well as the latest minimum specifications posted, as of the project advertising date, at CTDOTs web site <http://www.ct.gov/dot/cwp/view.asp?a=1410&q=563904>

Within 10 calendar days after the signing of the Contract but before ordering/purchasing the Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner/Fax), Field Office Wi-Fi, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projector(s) and Smart Board(s) as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Administering CTDOT District for review and approval. The Wi-Fi Printer, Wi-Fi Router, Flip Phones, Smart Phones, digital cameras, Projector(s) and Smart Board(s) will be reviewed by CTDOT District personnel. The Multifunction Laser Printer/Copier/Scanner/Fax will be reviewed by the CTDOT OIS. The Contractor shall not purchase the hardware, software, or services until the Administering CTDOT District informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi, Wi-Fi printer, and the configuration of the wireless router as directed by the CTDOT. Installation will be coordinated with CTDOT District and Project personnel.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the CTDOT administering District, a minimum of 2 working days in advance

of the proposed delivery or installation of the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors and Smart Board(s), as well as associated hardware, software, supplies, and support documentation.

The Contractor shall provide all supplies, paper, maintenance, service and repairs (including labor and parts) for the Wi-Fi printers, copiers, field office Wi-Fi, fax machines and other equipment and facilities required by this specification for the duration of the Contract. All repairs must be performed with-in 48 hours. If the repairs require more than a 48 hours then an equal or better replacement must be provided.

Once the Contract has been completed, the hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply install and maintain a rain gauge for the duration of the project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rain water from the top of the post into the rain gauge. The Location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

- A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
- B) Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.
- C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

All testing equipment will remain the property of the Contractor at the completion of the project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars (\$5,000) in order to insure all State-owned data

equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the CTDOT shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The CTDOT will be responsible for all maintenance costs of CTDOT owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the CTDOT may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the Contractor under the Contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the CTDOT will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During the occupancy by the CTDOT, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement: The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

Basis of Payment: The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for "Construction Field Office, Medium," which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements of this specified this specification.

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Field Office, Medium	Month

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description is supplemented by the following:

The Contractor shall maintain and protect traffic as described by the following and as limited in the Special Provision "Prosecution and Progress":

Route 34

The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least one lane of through traffic on a paved travel path not less than 11 feet in width.

Ramps and Turning Roadways

The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect a minimum of one lane of traffic, on a paved travel path not less than 12 feet in width.

All Other Roadways

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet and there shall be no more than one alternating one-way traffic operation within the project limits without prior approval of the Engineer.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the project limits. The Contractor will be allowed to close said driveways to perform the required work during those periods when the businesses are closed, unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

Article 9.71.03 - Construction Method is supplemented as follows:

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction, in which case, the Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days. The unpaved section shall be the full width of the road and perpendicular to the travel lanes. Opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (work night), or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

If applicable, when an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

Construction vehicles entering travel lanes at speeds less than the posted speed are interfering with traffic, and shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at posted speeds, in order to merge with existing traffic.

Existing Signing

The Contractor shall maintain all existing side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign

supports as many times as deemed necessary, and install temporary sign supports if necessary and as directed by the Engineer.

Requirements for Winter

The Contractor shall schedule a meeting with representatives from the Department including the offices of Maintenance and Traffic, and the Town of Orange to determine what interim traffic control measures the Contractor shall accomplish for the winter to provide safety to the motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

Pavement Markings -Non-Limited Access Multilane Roadways Secondary and Local Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include centerlines, edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; edge lines are not required. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings" after such time as determined by the Engineer.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic
- Duration of operation
- Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans 19 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

ALLOWABLE ADJUSTMENT OF SIGNS AND DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists,

abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

- 1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.
- 1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda should include:
 - Review Project scope of work and time
 - Review Section 1.08, Prosecution and Progress
 - Review Section 9.70, Trafficpersons
 - Review Section 9.71, Maintenance and Protection of Traffic
 - Review Contractor's schedule and method of operations.
 - Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
 - Open discussion of work zone questions and issues
 - Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

- 2.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available; the traffic control pattern shall not be installed.
- 2.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.
- 2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.
- 2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to

the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

- 3.a) Lane Closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.
- 3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed:
- As per the contract for such activities as blasting, steel erection, etc.
 - During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
 - To move slow moving equipment across live traffic lanes into the work area.
- 3.d) Temporary road closures using Rolling Road Blocks (RRB) may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:
- RRB may not start prior to the time allowed in the contract Limitations of Operation for sign pattern installation. Sign pattern removal must be complete prior to the time indicated in the Limitations of Operation for restoring the lanes to traffic.
 - On limited access highways with 4 lanes or more, a RRB may not start until the Limitations of Operation Chart allows a 2 lane closure. In areas with good sight lines and full shoulders, opposite side lead signs should be installed in a separate operation.
 - Truck-Mounted Impact Attenuators (TMAs) equipped with arrow boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including Truck-Mounted Impact Attenuators TMAs and police vehicles leave the shoulder or on-ramp and accelerate to a normal roadway speeds in each lane, then the vehicles will position themselves side by side and decelerate to the RRB speed on the highway.
 - An additional Truck-Mounted Impact Attenuator TMAs equipped with a Portable Changeable Message Sign shall be utilized to advise the motorists that sign pattern installation / removal is underway. The Pre-Warning Vehicle (PWV) should be initially positioned in the right shoulder ½ mile prior to the RRB operation. If a traffic queue reaches the PWV's initial location, the contractor shall slowly reverse the PWV along the shoulder to position itself prior to the new back of queue. A Pre-

- Warning Vehicle, as specified elsewhere in the contract, shall be utilized to advise the motorists that sign pattern installation / removal is underway.
- The RRB duration shall not exceed 15 minutes from start of the traffic block until all lanes are opened as designated in the Limitation of Operation chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the respective construction District.
 - RRB should not be utilized to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. Attenuator trucks (and State Police if available) should be used to protect the workers installing the taper in the additional lane.
 - Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days should be allowed for review and approval by the District.
 - The RRB procedures (including any approved exceptions) will be reviewed and discussed by the inspection team and the Contractor in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, the work will proceed as recommended by the Department Trooper. Any unresolved issues will be addressed the following day.
- 3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.
- 3.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

SECTION 4. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

- 4.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).
- 4.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.
- 4.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.
- 4.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closure tapers and in the “caution” mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.
- 4.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

SECTION 5. USE OF TRUCK MOUNTED OR TRAILER MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

- 5.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.
- 5.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.
- 5.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the “flashing arrow” mode when taking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The

flashing arrow board mounted on the TMA should be in the “caution” mode when traveling in the closed lane.

- 5.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The flashing arrow board mounted on the TMA should be in the “caution” mode when in the closed lane.
- 5.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled “Truck-Mounted or Trailer-Mounted Impact Attenuator”. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 5.f) TMAs should be paid in accordance with how the unit is utilized. If it is used as a TMA and is in the proper location as specified, then it should be paid at the specified hourly rate for “Truck-Mounted or Trailer-Mounted Impact Attenuator”. When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for “High Mounted Internally Illuminated Flashing Arrow”. If a TMA is used to install and remove a pattern and is also used as a Flashing Arrow in the same day, then the unit should be paid as a “Truck-Mounted or Trailer-Mounted Impact Attenuator” for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as a Flashing Arrow during the same day, then the unit should be paid at the daily rate as a “High Mounted Internally Illuminated Flashing Arrow”.

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

- 6.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.
- 6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
- 6.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.
- 6.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS (CMS)

- 7.a) For lane closures on limited access roadways, one CMS shall be used in advance of the traffic control pattern. Prior to installing the pattern, the CMS shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The CMS shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, than an additional CMS shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.
- 7.b) CMS should not be installed within 1000 feet of an existing CMS.
- 7.c) On non-limited access roadways, the use of CMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the CMS.
- 7.d) The advance CMS is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the CMS cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance CMS shall be adequately protected if it is used for a continuous duration of 36 hours or more.
- 7.e) When the CMS are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.
- 7.f) The CMS generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).
- 7.g) The CMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).
- 7.h) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

7.i) The messages that are allowed on the CMS are as follows:

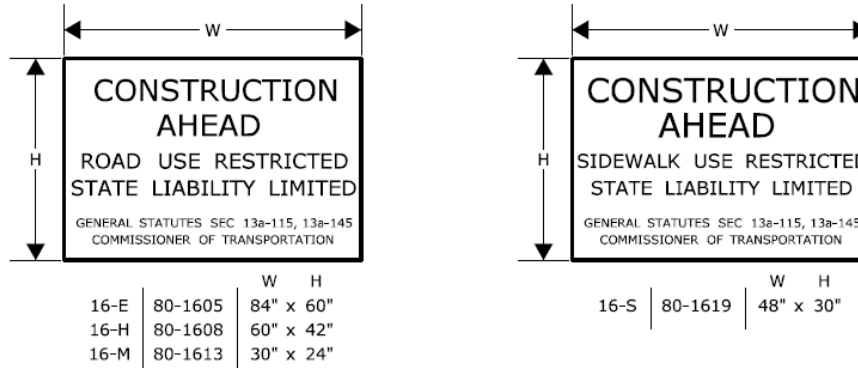
<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

SECTION 8. USE OF STATE POLICE OFFICERS

- 8.a) State Police may be utilized only on limited access highways and secondary roadways under their primary jurisdiction. One Officer may be used per critical sign pattern. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Likewise in areas with moderate traffic and wide, unobstructed medians, left lane closures can be implemented without State Police presence. Under some situations it may be desirable to have State Police presence, when one is available. Examples of this include: nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur, however they are not required.
- 8.b) Once the pattern is in place, the State Police Officer should be positioned in a non-hazardous location in advance of the pattern. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall be repositioned prior to the backup to give warning to the oncoming motorists. The State Police Officer and TMA should not be in proximity to each other.
- 8.c) Other functions of the State Police Officer(s) may include:
- Assisting entering/exiting construction vehicles within the work area.
 - Enforcement of speed and other motor vehicle laws within the work area, if specifically requested by the project.
- 8.d) State Police Officers assigned to a work site are to only take direction from the Engineer.

SERIES 16 SIGNS



THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMP PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMP, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

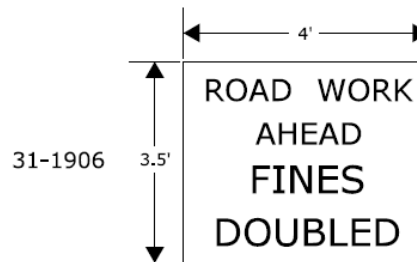
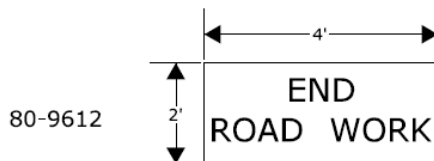
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180' (55m)
35	250' (75m)
40	320' (100m)
45	540' (165m)
50	600' (180m)
55	660' (200m)
65	780' (240m)

METRIC CONVERSION CHART (1" = 25mm)

ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300mm	42"	1050mm	72"	1800mm
18"	450mm	48"	1200mm	78"	1950mm
24"	600mm	54"	1350mm	84"	2100mm
30"	750mm	60"	1500mm	90"	2250mm
36"	900mm	66"	1650mm	96"	2400mm



SCALE: NONE

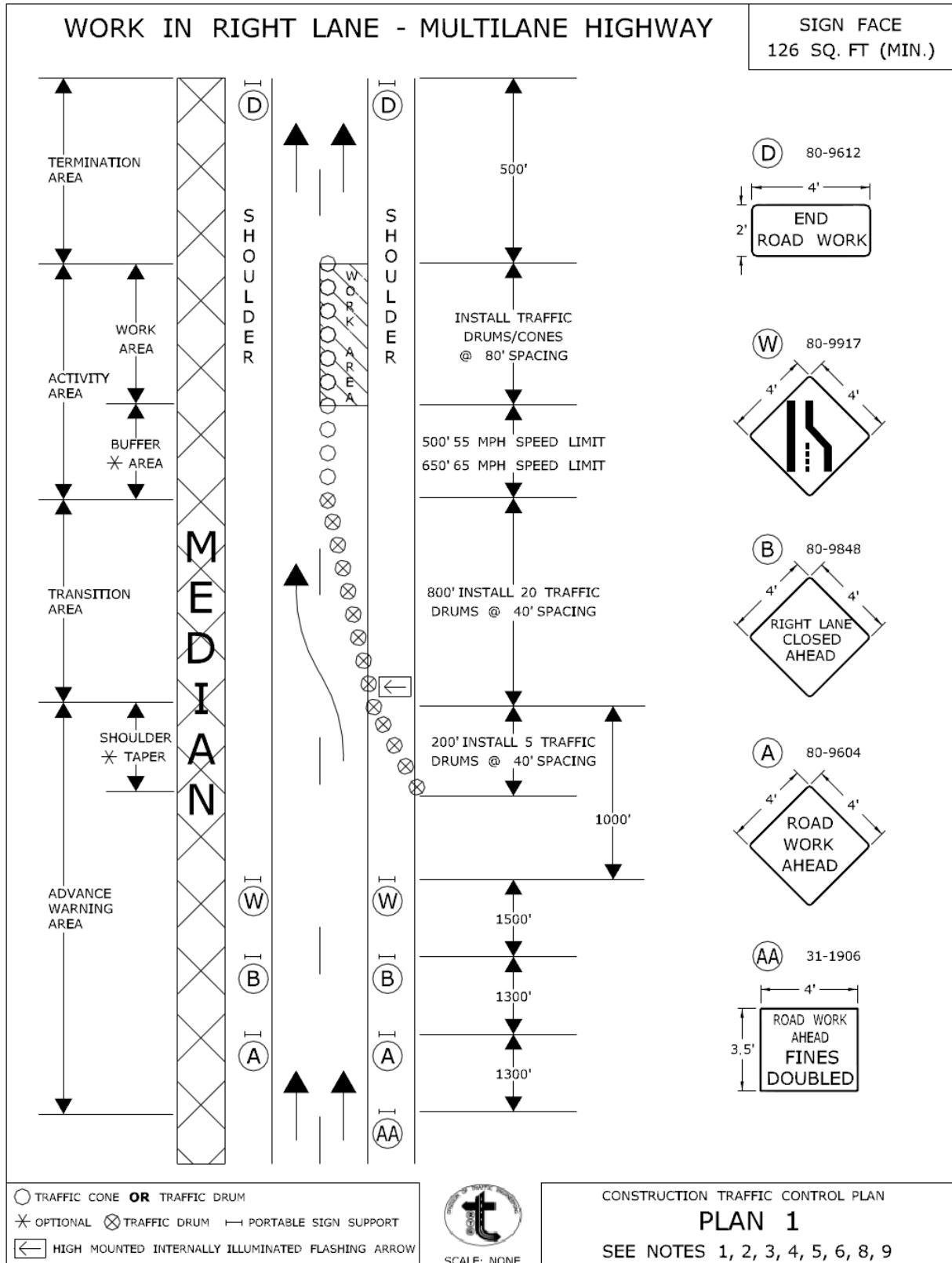
CONSTRUCTION TRAFFIC CONTROL PLAN NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

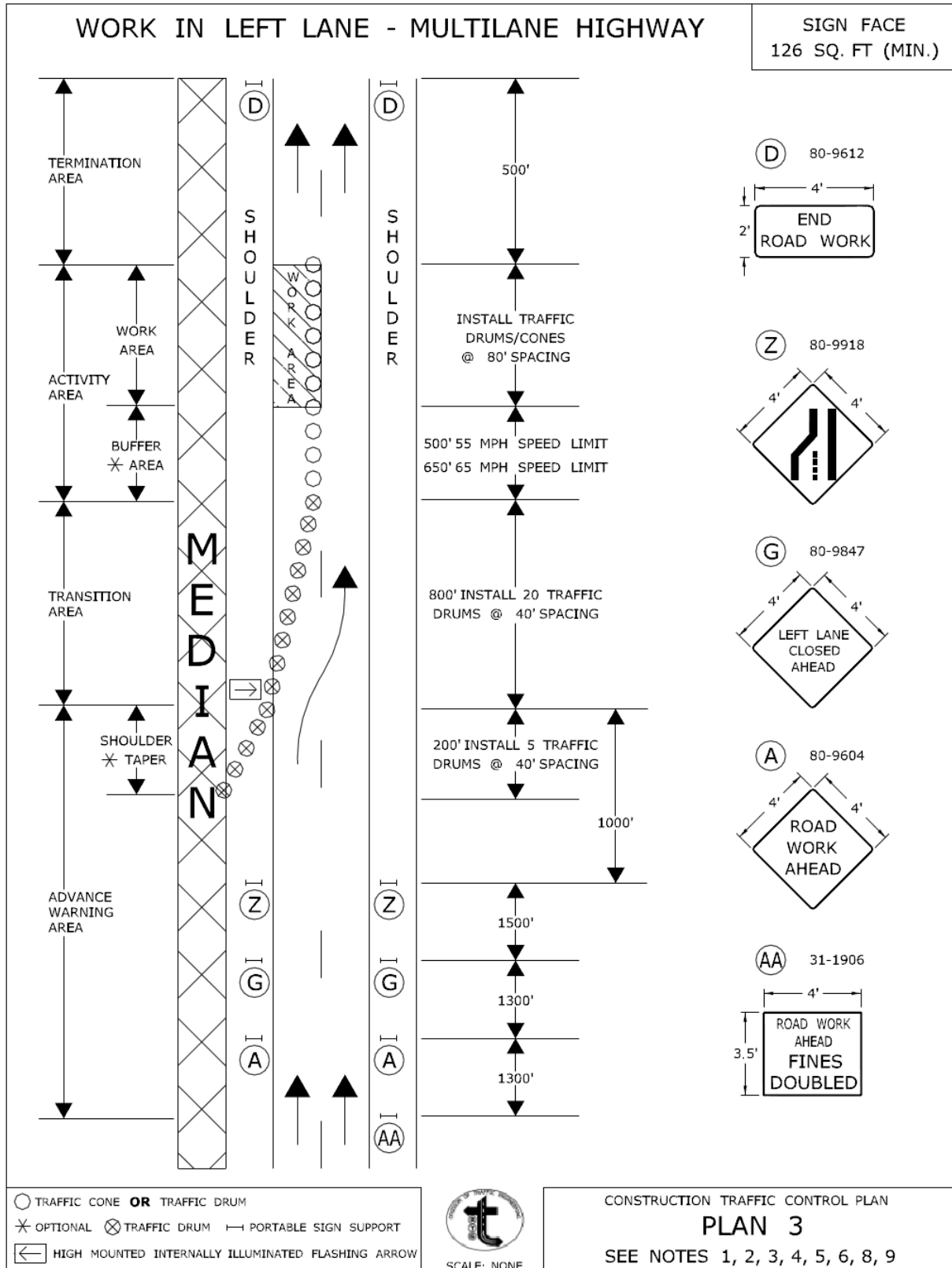
Charles S. Harlow
PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:50:35-0400



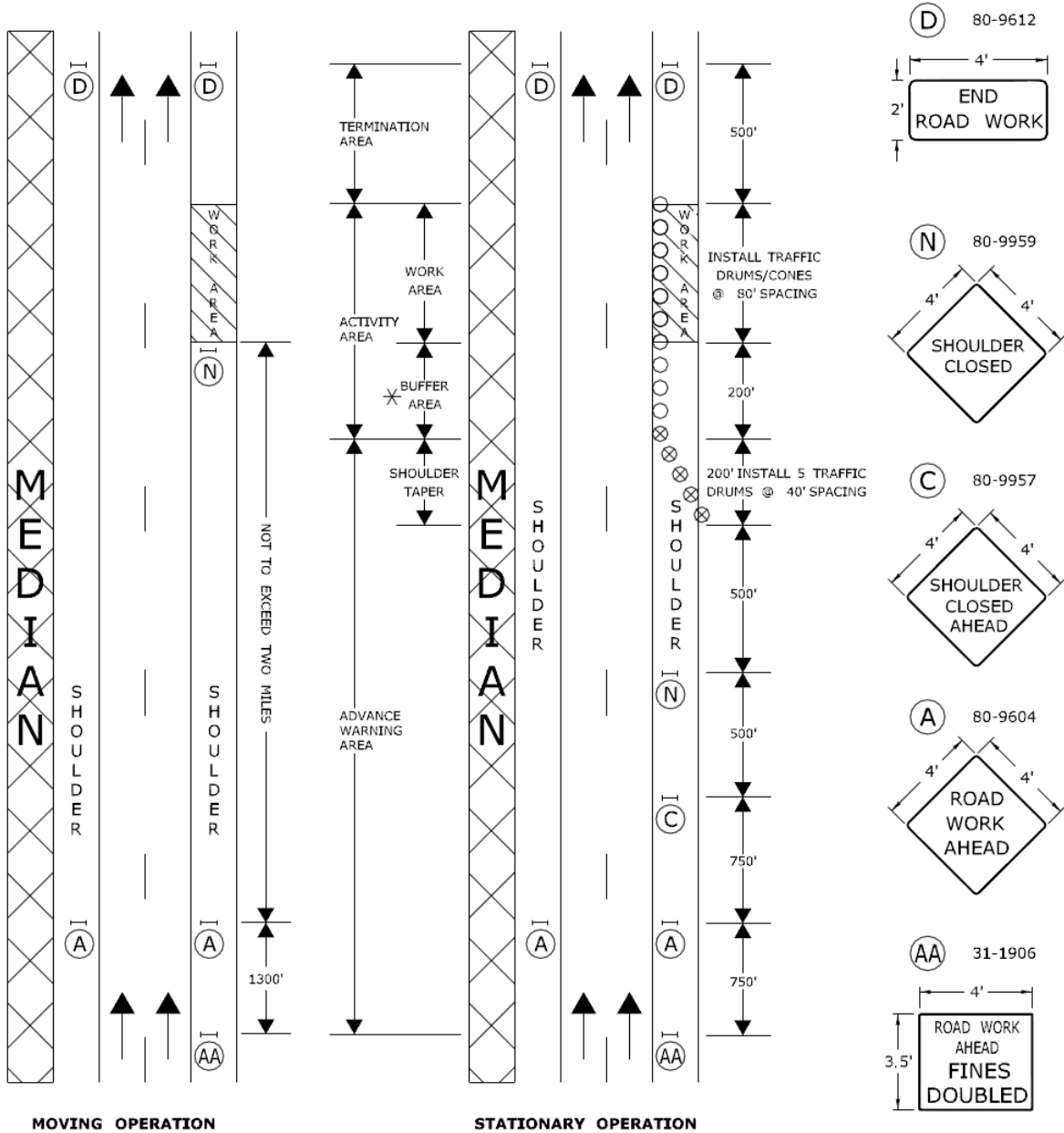
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow*
Charles S. Harlow
2012.06.05 15:51:00-0400
PRINCIPAL ENGINEER



WORK IN SHOULDER AREA - MULTILANE HIGHWAY

SIGN FACE
94 SQ. FT (MIN.)



- TRAFFIC CONE OR TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 6

SEE NOTES 1, 2, 4, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

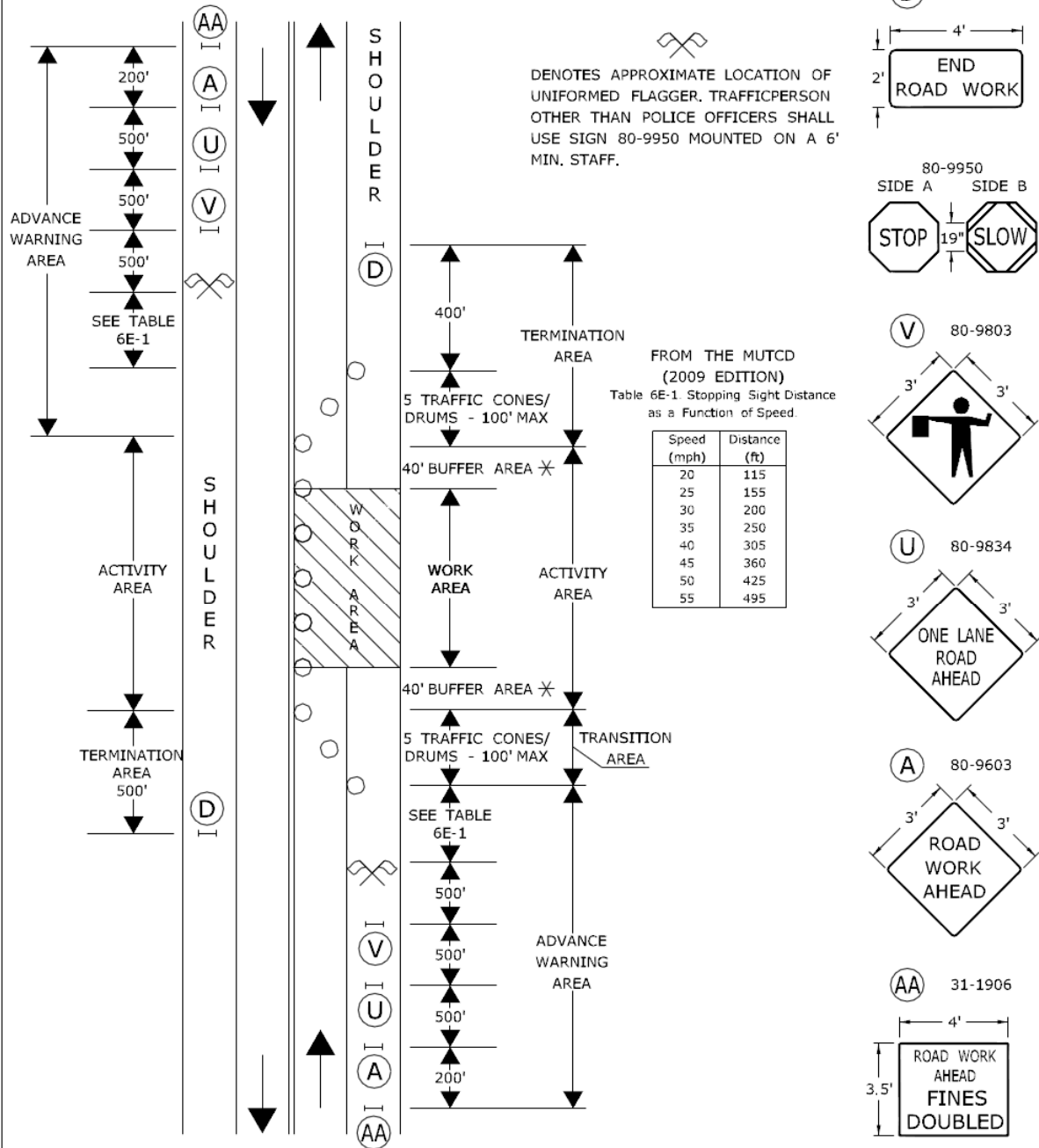
APPROVED

Charles S. Harlow
PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:52:38-04'00"

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)



- TRAFFIC CONE OR TRAFFIC DRUM
- ✱ OPTIONAL ✕ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ← HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 1 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow*
PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:55:23-04'00"

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



- TRAFFIC CONE **OR** TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow*
PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:45-04'00"

Article 9.71.05 – Basis of Payment is supplemented by the following:

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”. Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic.”

ITEM #1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented with the following:

Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented with the following:

The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement is supplemented with the following:

Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is supplemented with the following:

This work will be paid for at the contract lump sum price for “Removal and Relocation of Existing Signs” which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

Pay Item
Removal and Relocation of Existing Signs

Pay Unit
L.S.

ITEM #1208931A — SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)

ITEM #1208932A — SIGN FACE - SHEET ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

This item shall also include field testing of metal sign base posts as directed by the Engineer.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for “Sign Face - Sheet Aluminum” of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	51-100	101-250	251-1000	>1000
Sample Size=>	5 Posts	10 Posts	40 Posts	60 Posts
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing.

ITEM #1301934A – 24” STEEL PIPE SLEEVE

Description: Work under this item shall include furnishing materials, equipment and labor to extend an existing 24” steel pipe sleeve covering an existing 16in. cast iron water main as ordered by the Engineer. This work includes the necessary coordination with the South Central Connecticut Regional Water Authority (RWA) as required.

Materials: All materials shall be provided by the Contractor and shall meet the current requirements of the RWA. The 24” steel pipe sleeve shall be 8 feet long or as directed by the engineer with a minimum wall thickness of 0.375in., hot dipped galvanized and shall be Model No.FMP 2410/375 as manufactured by Ironhed Flanged Maintenance Pipe (www.splitsleeve.com) or approved equal. The pipe sleeve shall be machine cut in half and be able to be re-assembled with a minimum 3 bolted connections on each side with 1/2in. galvanized bolts. Polyethene casing spacers (2 required), Model No.CSP as manufactured by CCI Pipeline Systems or approved equal shall be installed on the existing water main to “center” the sleeve over the existing water main. A rubber transition boot shall be placed over the end of the steel sleeve and cast iron water main upon completion. The transition boot shall be as manufactured by CCI Pipeline System, model ESC or approved equal. A Romac Industries Inc. style 400 fabricated steel epoxy coated sleeve or approved equal shall be used to couple the new and existing pipe sleeves together.

Shop drawings for approval of all materials to be supplied shall be provided prior to ordering/fabrication to insure compliance with the material requirements.

Construction Methods: The Contractor shall perform all work in coordination with the utility company and as directed by the Engineer. RWA personnel shall be notified a minimum of 48 hours prior to excavation and installation of the water main sleeve.

The Contractor shall excavate a test pit to determine the existing end location and the outside diameter of the existing water main sleeve prior to submission of material shop drawings in order to obtain the necessary material for extension of the sleeve.

The Contractor shall excavate the area for the water main sleeve extension providing acceptable shoring and bracing when exceeding 4ft. of vertical depth in accordance with the RWA Safety Manual. The existing water main shall be cleaned of all debris prior to installation of the sleeve and pressure treated spacers. 2 polyethelene casing spacers shall be equally spaced on the existing water main to “center” sleeve over the water main. A steel epoxy coated sleeve shall be installed to couple the new and existing pipe sleeves together. Upon completion of installing the sleeve a rubber transition boot shall be placed over both the sleeve and existing water main providing a tight seal to prohibit debris from entering the sleeve opening.

The Contractor shall backfill the area in and around the sleeve to one (1) foot above the sleeve with clean sand and place a section of water main location tape on the backfilled area. The trench

area shall then be backfilled and compacted to 95% with final restoration per the D.O.T project requirements.

Any damage resulting from the Contractor's operations to the utility shall be corrected as ordered by the Engineer, without additional compensation to the Contractor. The Contractor shall take care in completing this work as the water main is in service and under pressure.

Method of Measurement: This work will be measured for payment by the number of linear feet of 24" Steel Pipe Sleeve actually installed.

Basis of Payment: This work will be paid for at the contract unit price for 24" Steel Pipe Sleeve, complete in place, including test pit, materials, equipment, tools, labor and all incidental expenses.

Pay Item
24" Steel Pipe Sleeve

Pay Unit
l.f.

PERMITS AND/OR REQUIRED PROVISIONS

The following Permits and/or and Required Provisions follow this page are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**

-Flood Management General Certificate Approved: December 4, 2018

-Army Corps of Engineers Self-Verification Notification Approved: December 21, 2018


-General Permit for Water Resource Construction Activities Approved: December 21, 2018

- **Construction Contracts - Required Contract Provisions (State Funded Only Contracts)**

Project No.: 106-127
Description: Bridge No. 00948
Route 34 over Wepawaug River
Town: Orange
Date: October 12, 2018

memorandum

to: Mr. Michael E. Masayda
Trans. Principal Engineer
Hydraulics and Drainage
Bureau of Engineering and Construction

from: Rabih M. Barakat 
Transportation Principal Engineer
Bridge Consultant Design
Bureau of Engineering and Construction

Please review this request for Flood Management General Certification and indicate your concurrence below.

Certification (to be completed by designer)

I have read the Flood Management General Certification and the descriptions for the approved DOT minor activities. This project qualifies for the Flood Management General Certification under:


- Minor Safety Improvements and Streetscape Projects
- Roadway Repaving, Maintenance & Underground Utilities
- Minor Stormwater Drainage Improvements
- Removal of Sediment or Debris from a Floodplain
- Wetland Restoration Creation or Enhancement
- Scour Repairs at Structures; *(Must acquire DEEP Fisheries Concurrence to be eligible)*
- Guide Rail Installation
- Deck and Superstructure Replacements
- Minor Bridge Repairs and Access
- Fisheries Enhancements
- Surveying and Testing
- Bicycle / Pedestrian, Multi Use Trails and Enhancement Projects

The following required documentation is attached in support of this certification:

- Project description
- Location plan
- Description of Floodplain involvement and how project qualifies for general certification
- 8-1/2" by 11" excerpt copy of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Boundary Map (if applicable)
- Design plans, (dated October 2018) with FEMA floodplain and floodway boundaries plotted, cross sections and profiles, as necessary, that clearly depict the floodplain involvement
- FEMA 100-year flood elevation plotted on elevation view (for structures)

Print Name Aija Zeidenbergs

Title Environmental Coordinator

Signature 


Date 10/10/18

Concurrence (to be completed by Hydraulics and Drainage)

Based on the documentation submitted, I hereby concur that the project qualifies for Flood Management General Certification.

If there are any changes to the proposed activities within the floodplain or floodway, the project must be re-submitted for review and approval.

Signature

 Michael Masayda, P.E.
2018.10.31 14:29:09-04:07

Date 10-31-18

Attachment A: Project Description

Flood Management General Certification

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

This project involves the rehabilitation of Bridge No. 00948, which carries Route 34 over Wepawaug River in Orange. The structure, built in 1855 and rehabilitated in 1940, is a single span hybrid arch structure with approximately 11 feet of fill above the arch. The original structure consists of a masonry arch and the rehabilitation extended the structure downstream with a reinforced concrete arch to widen the roadway above. As part of the rehabilitation, the existing masonry arch underside was covered with a mortar veneer. The substructure consists of concrete footings and wingwalls. The bridge carries two lanes of traffic with narrow shoulders in each direction separated by an approximately 8-foot wide raised median. The curb-to-curb width over the structure, in each direction of traffic, is 29 feet. The travel way consists of approximately 22 feet of reinforced concrete pavement with a bituminous concrete overlay and full depth bituminous concrete shoulders. The out-to-out width of the structure is 74 feet. There are no sidewalks on the bridge or approaches. The structure has a span length of 24 feet with no skew relative to the river below. There is a concrete walkway located under the structure which travels along the southeast wingwall and east abutment. The sidewalk ends at a weir located under the bridge at the joint between the original structure and the 1940 addition. The 2015 Average Daily Traffic (ADT) on the bridge is 34,600 vehicles.

The proposed rehabilitation project consists of constructing cast-in-place reinforced concrete slab sections in the areas of the shoulders and median, doveled into the existing concrete pavement slabs within the roadway sections, thus creating a full width concrete slab across the entire length of the bridge.

New membrane waterproofing and bituminous overlay will be placed on top of the slab. This slab will be utilized to reduce water infiltration to the arch structure below. The existing parapets will be retained but modified with new safety shaped parapets constructed on the inward side so as to meet current crash standards with the new concrete shoulder slabs appropriately designed to carry all required load conditions. End walls will be added at each corner of the bridge. The roadway width will be increased so as to provide standard width shoulders by reducing the median width over the structure. The mortar veneer on the underside of the masonry arch will be removed and the underlying masonry joints will be re-pointed as needed. Weep holes will be installed at the spring line along the entire length of the structure to reduce water flow through the joints. The reinforced concrete substructure and wingwalls will be repaired as required.

The proposed rehabilitation is necessary because the existing structure is structurally deficient primarily due to the deteriorated condition of the masonry arch veneer. The veneer has areas of spalling with evidence of active leakage. Additionally, the existing parapets and guiderail attachments are substandard.

Construction will be performed in three main stages while maintaining two lanes of traffic in each direction during all peak hour times. Stage 1 will consist of moving traffic to the outside areas of the existing bridge while constructing the reinforced concrete slab in the existing median and inside shoulder areas. Stage 1 may require sub-stages B & C due to the exact location of the existing concrete pavement which will be field verified at the start of construction. If the sub-stages are required they will be accomplished utilizing weekend closures of one lane of traffic. Stage 2 will consist of moving two (2) lanes of traffic to the center area of the bridge while constructing the reinforced concrete slabs in the outside shoulder areas. Stage 3 will consist of the construction of the new concrete median barrier with traffic utilizing the outside areas of the rehabilitated structure. Repairs to the substructure and arch can be performed from below while utilizing off-peak lane closures as required.

The aerial utilities along the north side of Route 34 will not require relocation. There are underground facilities at the site consisting of water, gas, and communication lines. The water and communication lines are in conduit and as such may remain in place unaffected for the most part by the proposed construction activities. The gas line will be relocated adjacent to the existing 6" main and placed in a steel conduit sleeve for future removal and replacement without the need to disrupt the new waterproof slab over the rehabilitated structure. This work will take place while the stage 2 maintenance and protection of traffic scenario is in effect.

The anticipated construction duration is approximately 6 months and is scheduled to take place during the 2019 construction season. The construction cost for this project is estimated to be \$1,500,000.

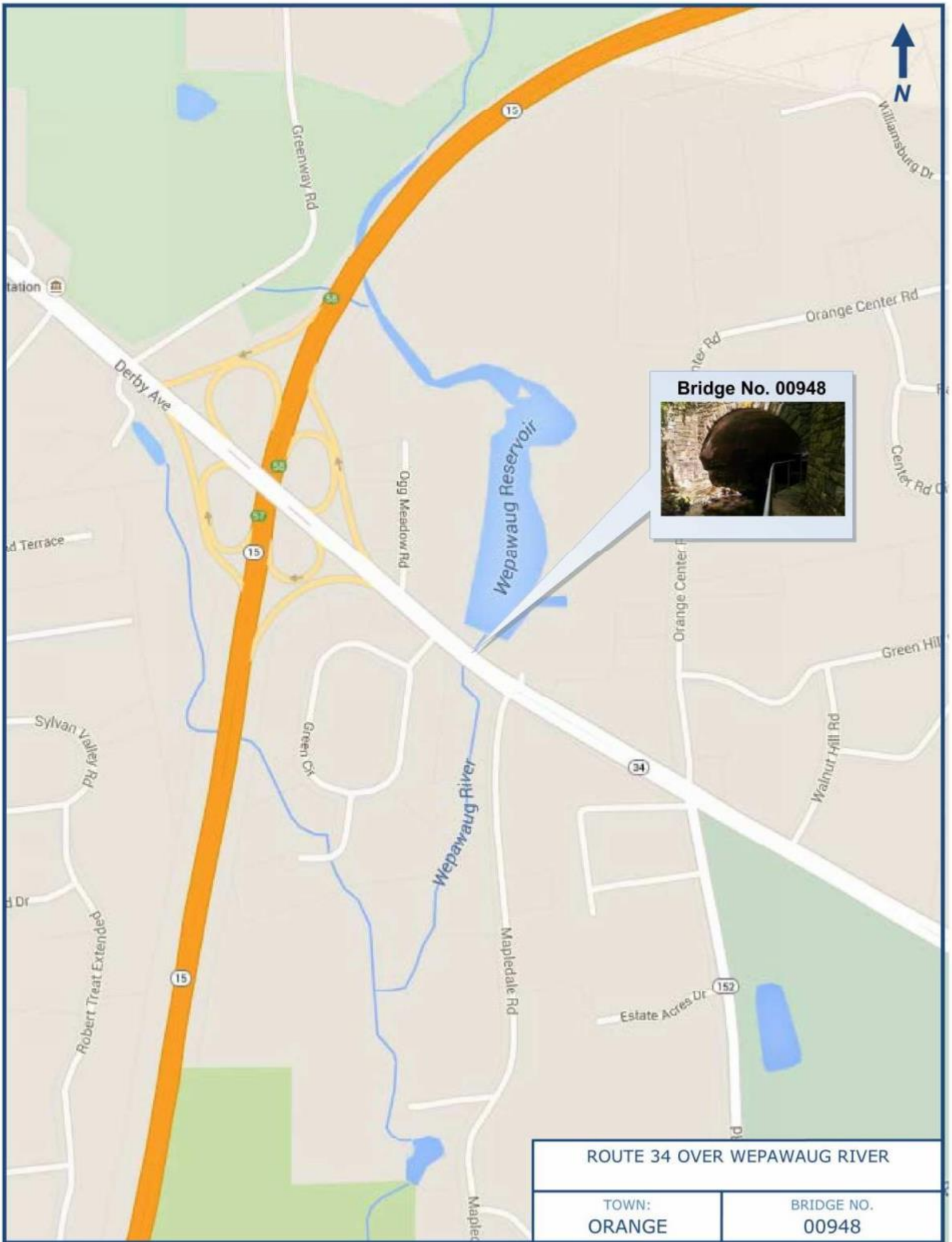
Attachment B: Location Plan

Flood Management General Certification

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

List of Attachments

- Location Map



ROUTE 34 OVER WEPAWAUG RIVER	
TOWN: ORANGE	BRIDGE NO. 00948

Attachment C: Description of Floodplain Involvement

Flood Management General Certification

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

The bridge is located in a FEMA Zone AE and a Floodway with a regulatory and floodway elevation of 164.3 ft. NGVD 1929 datum.

The proposed rehabilitation is necessary because the existing structure is structurally deficient. Its structural deficiency is primarily due to the deteriorated condition of the masonry arch veneer. The veneer has areas of spalling with evidence of active leakage. Additionally, the existing parapets and guide rail attachments are substandard. The existing mortar veneer covering the masonry portion of the structure is to be removed and weep holes are to be installed at the spring line along the entire length of the structure. This work will require a debris shield to be put in place by the Contractor as well as sand bag cofferdams along each side of the stream within the culverts to channelize flow through the center section of the bridge so as to allow for the installation of the weep holes in a dry condition.

The existing low chord elevation of the structure and the existing road elevation at the lowest end of the bridge will remain unchanged as a result of work proposed. Therefore the hydraulic opening of the structure is not affected by this project.

The FEMA profile presented in the 2017 FIS for New Haven County indicates that the bridge is hydraulically adequate, with a freeboard to the roadway of 11.6 feet and a HW/D (based on the headwater to the arch and the rise of the arch) of approximately 1.5. The approach section to the structure is assumed to be immediately upstream of the drawdown to the crossing evident on the FIS profile.

Since the flow through the structure is controlled by the upstream dam immediately adjacent to the inlet to the structure, flow within the structure is not assumed to be problematic during the rehabilitation project. Therefore, it is proposed to set the top of cofferdam elevation as one foot above the ordinary high water line elevation. In addition, it is proposed to require the Contractor to provide a Flood Contingency Plan for review and approval by the Engineer which will require all materials and equipment, exclusive of the cofferdams, to be removed from the work zone in a timely manner in the event of an impending major storm event as deemed appropriate by the Engineer.

Based on the above the proposed work will not affect the regulatory floodplain and floodway elevation nor the hydraulic capacity of the structure.

Attachment D: FEMA Flood Insurance Rate Map

Flood Management General Certification

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

List of Attachments

- Flood Insurance Rate Map Panel 0417 of 0635, New Haven County.
Map Number 09009C0417J
Revised: May 16, 2017

Attachment E: Environmental Permit Plans

Flood Management General Certification

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

List of Plan Sheets and Drawings

PMT-01	Title Sheet	October 2018
PMT-02	Wetlands/Watercourse Impact Plan	October 2018
PMT-03	Roadway Plan	October 2018
PMT-04	General Plan	October 2018
PMT-05	Water Handling Plan	October 2018



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2931

December 21, 2018

Ms. Susan Lee
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

Subject: **State Project No. 106-127**
Bridge No. 00948
Route 34 over Wepawaug River
Town of Orange

Dear Ms. Lee:

Enclosed please find one copy of the USACE Appendix E: Self-Verification Notification Form for GP 19 with attachments for your files. A copy has also been submitted to the Connecticut Department of Energy and Environmental Protection. The project has been submitted to the United States Fish & Wildlife Service by DOT's Office of Environmental Planning under the Final 4(d) Rule using the Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form on behalf of FHWA. Any questions pertaining to this application may be directed to Mr. Andrew H. Davis, Transportation Supervising Planner of my staff, at 860-594-2157.

Very truly yours,

A handwritten signature in blue ink that reads "Kimberly C Lesay".

Kimberly C Lesay
Transportation Assistant Planning Director
Bureau of Policy and Planning

bcc: Kimberly C. Lesay – Kevin F. Carifa – Andrew Piraneo
Andrew H. Davis – Michael J. Salter
Rabih M. Barakat – Louis D. Bacho – Susan Morneault
Dominic LaRosa, District 3



**US Army Corps
of Engineers**[®]
New England District

Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751
or cenae-r@usace.army.mil

and

CT DEEP
Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

State or local Permit Number: _____
Date of State or local Permit: _____
State/local Project Manager: _____

Permittee: Connecticut Department of Transportation
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111
Phone(s) and Email: 860-594-2931 kimberly.lesay@ct.gov

Contractor: TBD
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: Close, Jensen & Miller, P.C.
Address, City, State & Zip: 1137 Silas Deane Highway, Wethersfield, CT 06109
Phone(s) and Email: 860-563-9375 mlevesque@cjmpc.com

Wetland/Soil Scientist Consultant: GZA
Address, City, State & Zip: 1350 Main Street, Suite 1400, Springfield MA 01103
Phone(s) and Email: 413-726-2100 paul.davis@gza.com

Project Location (provide detailed description & locus map): Bridge No. 00948 (See attachment)

Address, City, State & Zip: Route 34 over Wepawaug River, Orange, CT 06477
Latitude/Longitude Coordinates: 41 18' 13.68"N/73 01' 48.36"W
Waterway Name: Wepawaug River

Project Purpose (include all aspects of the project including those not within Corps jurisdiction):
Rehabilitation of Bridge No. 00948 single span hybrid arch structure due to the deteriorated condition of the masonry arch veneer.

Work Description: _____
Bridge No. 00948 consists of constructing cast-in-place concrete slab sections on the roadway above the arch. The mortar veneer will be removed and the masonry joints will be re-pointed as needed. Weep holes will be installed and the substructure and wingwalls will be repaired as required.

Work will be done under the following GP(s) (check all that have associated impacts):

_____ GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 5 - Boat ramps/marine railways

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

**_____ GP. 6 - Utility line activities (include calculations for each single & complete crossing
– attach additional sheet if necessary)**

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 9 - Shoreline and bank stabilization projects

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 10 - Aquatic habitat restoration, establishment and enhancement activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 12 - Oil Spill and Hazardous material cleanup

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 13 - Cleanup of hazardous and toxic waste

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 14 - Scientific measurements devices

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 15 - Survey activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

_____ GP. 17 - New/expanded developments & recreational facilities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)

Area of total wetland impacts: temporary _____ SF permanent _____ SF
Area of total waterway impacts: temporary _____ SF permanent _____ SF

X GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)

Area of total wetland impacts: temporary 370 SF permanent 0 SF
Area of total waterway impacts: temporary 2,380 SF permanent 0 SF

GP. 21 - Temporary fill not associated with any other GP activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF
Area of total waterway impacts: temporary _____ SF permanent _____ SF

Does your project include any secondary effects? Yes _____ No X

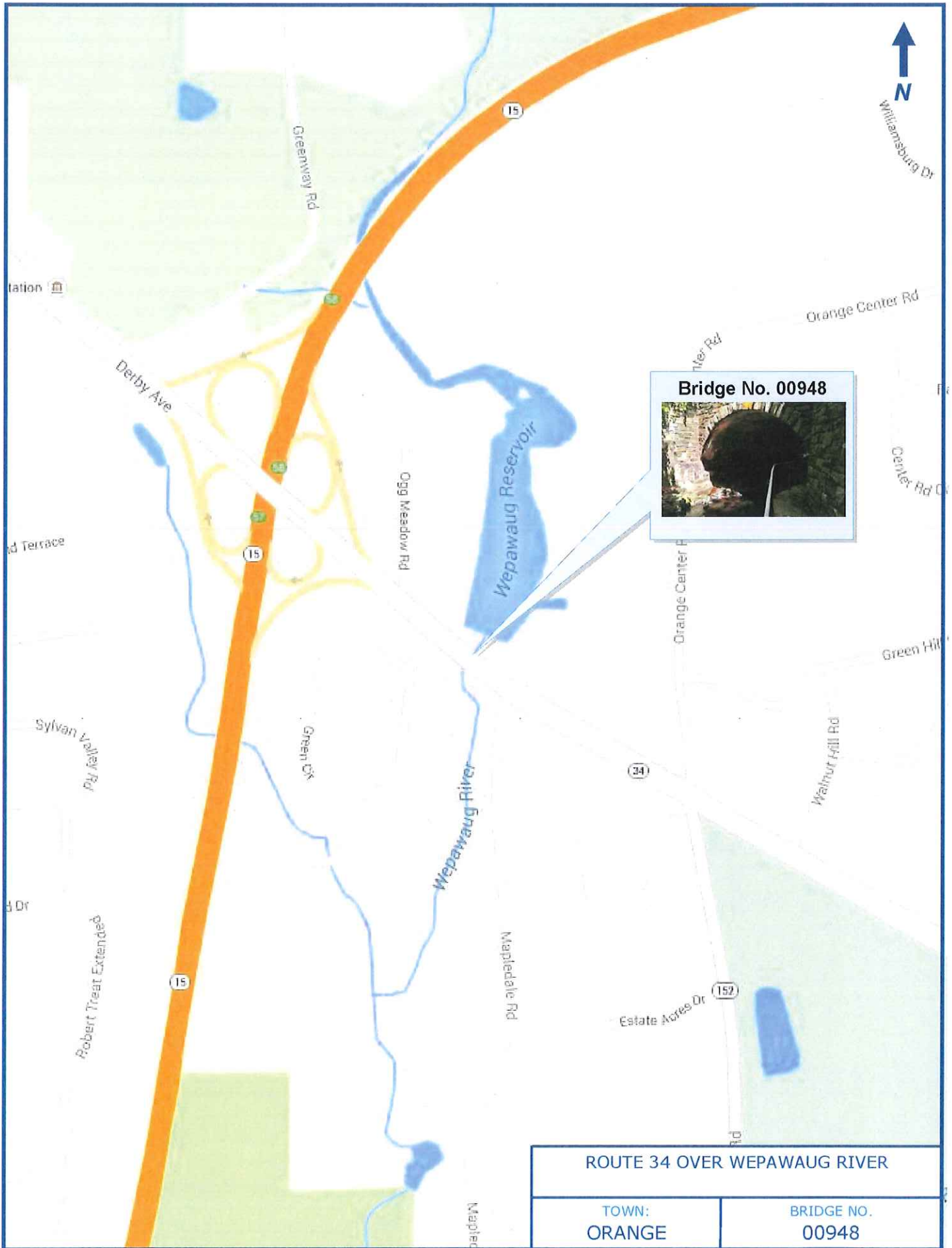
(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: _____

Proposed Work Dates: Start: Spring 2019 Finish: Fall 2019

Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.

Thomas J. Maguire
Signature of Permittee

12-21-2018
Date



ROUTE 34 OVER WEPAWAUG RIVER	
TOWN: ORANGE	BRIDGE NO. 00948

Project Description

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

This project involves the rehabilitation of Bridge No. 00948, which carries Route 34 over Wepawaug River in Orange. The structure, built in 1855 and rehabilitated in 1940, is a single span hybrid arch structure with approximately 11 feet of fill above the arch. The original structure consists of a masonry arch and the rehabilitation extended the structure downstream with a reinforced concrete arch to widen the roadway above. As part of the rehabilitation, the existing masonry arch underside was covered with a mortar veneer. The substructure consists of concrete footings and wingwalls. The bridge carries two lanes of traffic with narrow shoulders in each direction separated by an approximately 8-foot wide raised median. The curb-to-curb width over the structure, in each direction of traffic, is 29 feet. The travel way consists of approximately 22 feet of reinforced concrete pavement with a bituminous concrete overlay and full depth bituminous concrete shoulders. The out-to-out width of the structure is 74 feet. There are no sidewalks on the bridge or approaches. The structure has a span length of 24 feet with no skew relative to the river below. There is a concrete walkway located under the structure which travels along the southeast wingwall and east abutment. The sidewalk ends at a weir located under the bridge at the joint between the original structure and the 1940 addition. The 2015 Average Daily Traffic (ADT) on the bridge is 34,600 vehicles.

The proposed rehabilitation project consists of constructing cast-in-place reinforced concrete slab sections in the areas of the shoulders and median, doveled into the existing concrete pavement slabs within the roadway sections, thus creating a full width concrete slab across the entire length of the bridge.

New membrane waterproofing and bituminous overlay will be placed on top of the slab. This slab will be utilized to reduce water infiltration to the arch structure below. The existing parapets will be retained but modified with new safety shaped parapets constructed on the inward side so as to meet current crash standards with the new concrete shoulder slabs appropriately designed to carry all required load conditions. End walls will be added at each corner of the bridge. The roadway width will be increased so as to provide standard width shoulders by reducing the median width over the structure. The mortar veneer on the underside of the masonry arch will be removed and the underlying masonry joints will be re-pointed as needed. Weep holes will be installed at the spring line along the entire length of the structure to reduce water flow through the joints. The reinforced concrete substructure and wingwalls will be repaired as required.

The proposed rehabilitation is necessary because the existing structure is structurally deficient primarily due to the deteriorated condition of the masonry arch veneer. The veneer has areas of spalling with evidence of active leakage. Additionally, the existing parapets and guiderail attachments are substandard.

Prior to the start of the primary construction activities, a pre-stage will be necessary to rebuild the existing shoulder areas for stage construction traffic, and to identify the exact location and condition of the existing concrete pavement. The pre-stage work will be accomplished during allowable daily off-peak hours or by utilizing weekend closures of one lane of traffic.

The primary construction will be performed in three main stages while maintaining two lanes of traffic in each direction during all peak hour times. Stage 1 will consist of moving traffic to the outside areas of the existing bridge while constructing the reinforced concrete slab in the existing median and inside shoulder areas. Stage 1 may require sub-stages B & C due to the exact location of the existing concrete pavement which will be verified during the pre-stage activities. If the sub-stages are required they will be accomplished utilizing weekend closures of one lane of traffic. Stage 2 will consist of moving two (2) lanes of traffic in each direction to the center area of the bridge while constructing the reinforced concrete slabs in the outside shoulder areas. Stage 3 will consist of the construction of the new concrete median barrier with traffic utilizing the outside areas of the rehabilitated structure. Repairs to the substructure and arch can be performed from below while utilizing off-peak lane closures as required.

The aerial utilities along the north side of Route 34 will not require relocation. There are underground facilities at the site consisting of water, gas, and communication lines. The water main is in an existing steel sleeve and communication lines are in conduit and as such may remain in place unaffected for the most part by the proposed construction activities. The gas line will be relocated adjacent to the existing 6" main and placed in a steel conduit sleeve for future removal and replacement without the need to disrupt the new waterproof slab over the rehabilitated structure. This work will take place while the stage 2 maintenance and protection of traffic scenario is in effect.

The anticipated construction duration is approximately 6 months and is scheduled to take place during the 2019 construction season.

The contributing drainage area at the Bridge No. 00948 is approximately 7.83 square miles. The regulated resources in the area include State Regulated Watercourse and Inland Wetlands, Federally Regulated Wetlands and Waters of the U.S.

According to the May 16, 2017, Map Number 09009C0417J, Town of Orange New Haven County Flood Insurance Rate Map, the project is located in a FEMA Zone AE and a Floodway with a regulatory and floodway elevation of 164.3 ft. NGVD 1929 datum. Coordination has taken place with CT DEEP Fisheries Division and there are no fisheries resource issues of concern with the construction activities at the bridge.

This work will require a debris shield to be put in place by the Contractor as well as a temporary flow diversion pipe with temporary water handling cofferdams at the inlet and outlet in order to maintain a dry work area.

The existing low chord elevation of the structure and the existing road elevation at the lowest end of the bridge will remain unchanged as a result of work proposed. Therefore the hydraulic opening of the structure is not affected by this project.

The FEMA profile presented in the 2017 FIS for New Haven County indicates that the bridge is hydraulically adequate, with a freeboard to the roadway of 11.6 feet and a HW/D (based on the headwater to the arch and the rise of the arch) of approximately 1.5. The approach section to the structure is assumed to be immediately upstream of the drawdown to the crossing evident on the FIS profile.

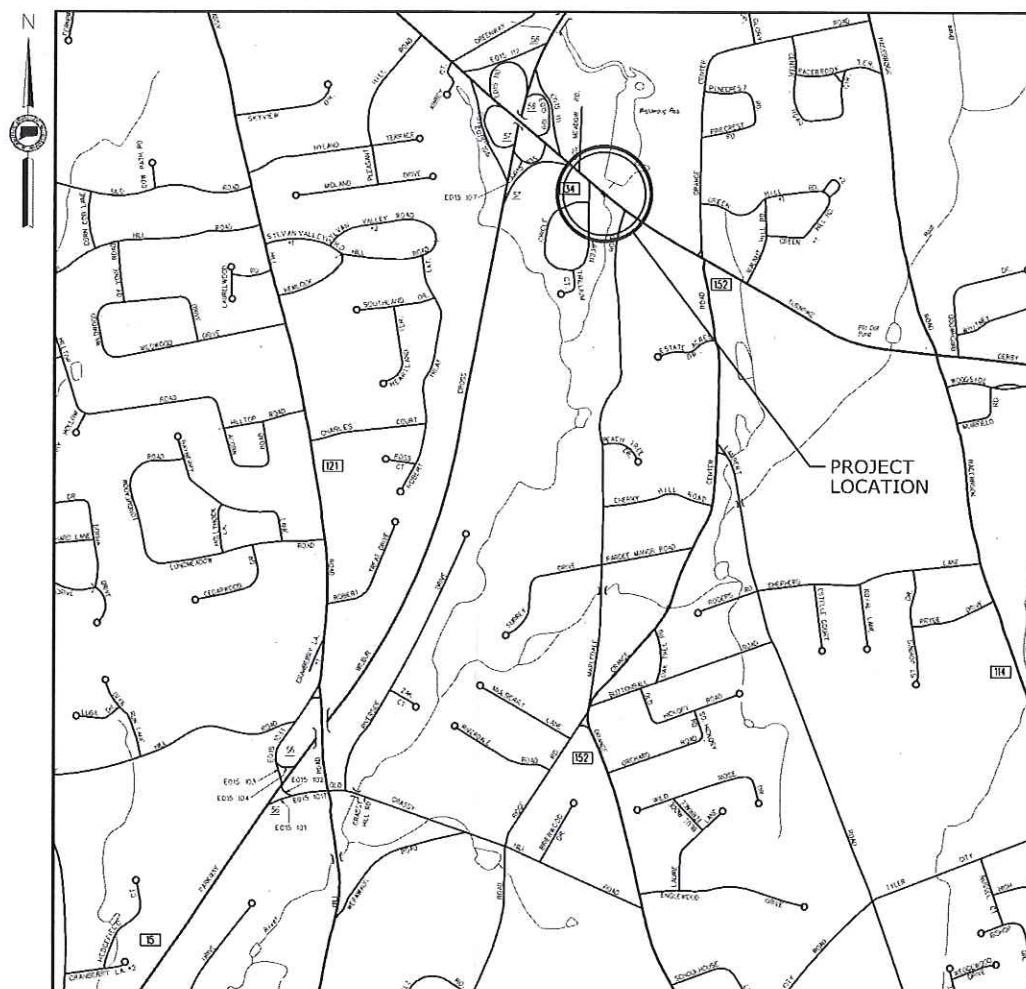
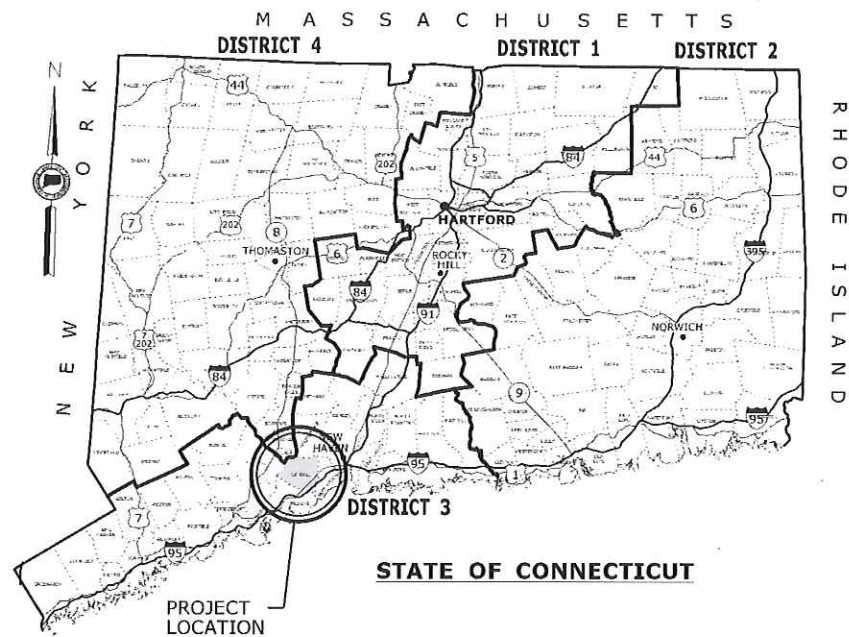
The Contractor will coordinate with the Engineer and South Central Connecticut Regional Water Authority (SCCRWA) to restrict the flow from the Wepawaug Reservoir Dam. Therefore, the location and the top of the temporary water handling cofferdam(s) elevation will be placed as shown on the plans or as required based on flows resulting from coordination with SCCRWA. In addition, it is proposed to require the Contractor to provide a Flood Contingency Plan for review and approval by the Engineer which will require all materials and equipment, exclusive of the temporary water handling cofferdams, to be removed from the work zone in a timely manner in the event of an impending major storm event as deemed appropriate by the Engineer.

Based on the above the proposed work will not affect the regulatory floodplain and floodway elevation nor the hydraulic capacity of the structure.

Impacts to the stream will be minimized through adherence to Form 817, Section 1.10 Best Management Practices (BMP's), and the 2004 Stormwater Quality Manual. During construction, proper water handling measures will be implemented to allow work to occur in the areas confined within those water handling devices. Sedimentation and Erosion Control Systems will be installed as necessary to limit disturbances to protect the wetlands and watercourses through adherence to the 2002 Erosion and Sedimentation Guideline Manual.

There are no permanent impacts to the wetlands and watercourse. Temporary impacts below the ordinary high water line will amount to 2,380 sq. ft. (0.055 acres). Temporary impacts to the inland wetlands will amount to 370 sq. ft. (0.008 acres). Temporary impacts are as a result of the placement of a temporary flow diversion pipe with temporary water handling cofferdams at the inlet and outlet.

ENVIRONMENTAL PERMIT PLANS PROJECT NO. 106-127 REHABILITATION OF BRIDGE 00948 IN THE TOWN OF ORANGE



LOCATION PLAN

1" = 1000'

LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	ROADWAY PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	WATER HANDLING PLAN

GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1927 VERTICAL DATUM BASED ON NGVD OF 1929.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD SPECIFICATIONS FOR ROADS, BRIDGE, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

DESIGNED BY:

STANTEC CONSULTING SERVICES INC.
55 CHURCH STREET, SUITE 601
NEW HAVEN, CT 06510

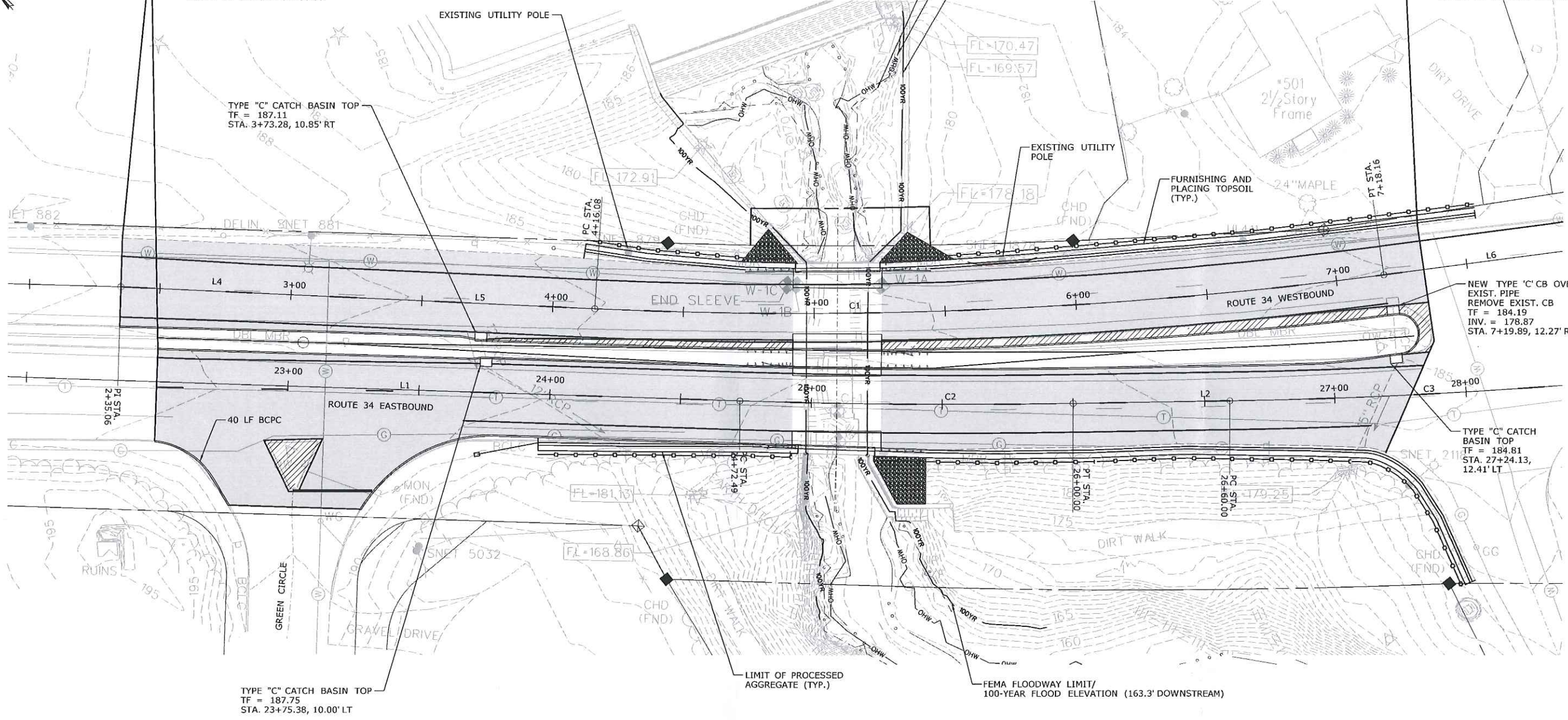
PLAN DATE: DECEMBER 10, 2018

DESIGNER/DRAFTER: JJF	CHECKED BY: AML	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SIGNATURE/ BLOCK:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127	DRAWING NO. PMT-01
SCALE AS NOTED	Plotted Date: 12/10/2018	Filename: ...PMT-01 TITLE SHEET.dgn		DRAWING TITLE: TITLE SHEET	SHEET NO.		
REV. DATE	REVISION DESCRIPTION	SHEET NO.					



**START STATE PROJECT
NO. 106-0127
LIMIT OF CONSTRUCTION**
ROUTE 34 EB STA. 22+50.00
ROUTE 34 WB STA. 02+35.06

**END STATE PROJECT
NO. 106-0127
LIMIT OF CONSTRUCTION**
ROUTE 34 EB STA. 27+28.93
ROUTE 34 WB STA. 07+33.60



HIGHWAY PLAN
SCALE: 1" = 20'-0"

NOTES

1. ALL WORK AND MATERIALS ASSOCIATED WITH CONNECTING NEW DRAINAGE STRUCTURES TO EXISTING PIPE SHALL BE PAID FOR UNDER THE ITEM "TYPE 'C' CATCH BASIN".
2. THE BITUMINOUS CONCRETE MEDIAN SHALL BE PAID FOR UNDER THE ITEM "BITUMINOUS CONCRETE SIDEWALK".

LEGEND

- FINE MILL ROAD CONSTRUCTION
- FULL DEPTH ROAD CONSTRUCTION

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

DESIGNER/DRAFTER: JJF	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: 	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127	
CHECKED BY: AML	SCALE AS NOTED	FILENAME: ...PMT-02 ROADWAY PLAN.dgn		DRAWING TITLE: ROADWAY PLAN	DRAWING NO. PMT-02	SHEET NO.	
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018				



WETLAND/WATERCOURSE SITE AREA IMPACT				
	WETLAND SITE NO.	WETLAND IMPACTS	WATERWAY IMPACTS	TOTAL
TEMPORARY IMPACTS*	1	370 SF (0.008 AC.)	2380 SF (0.055 AC.)	2750 SF (0.063 AC.)

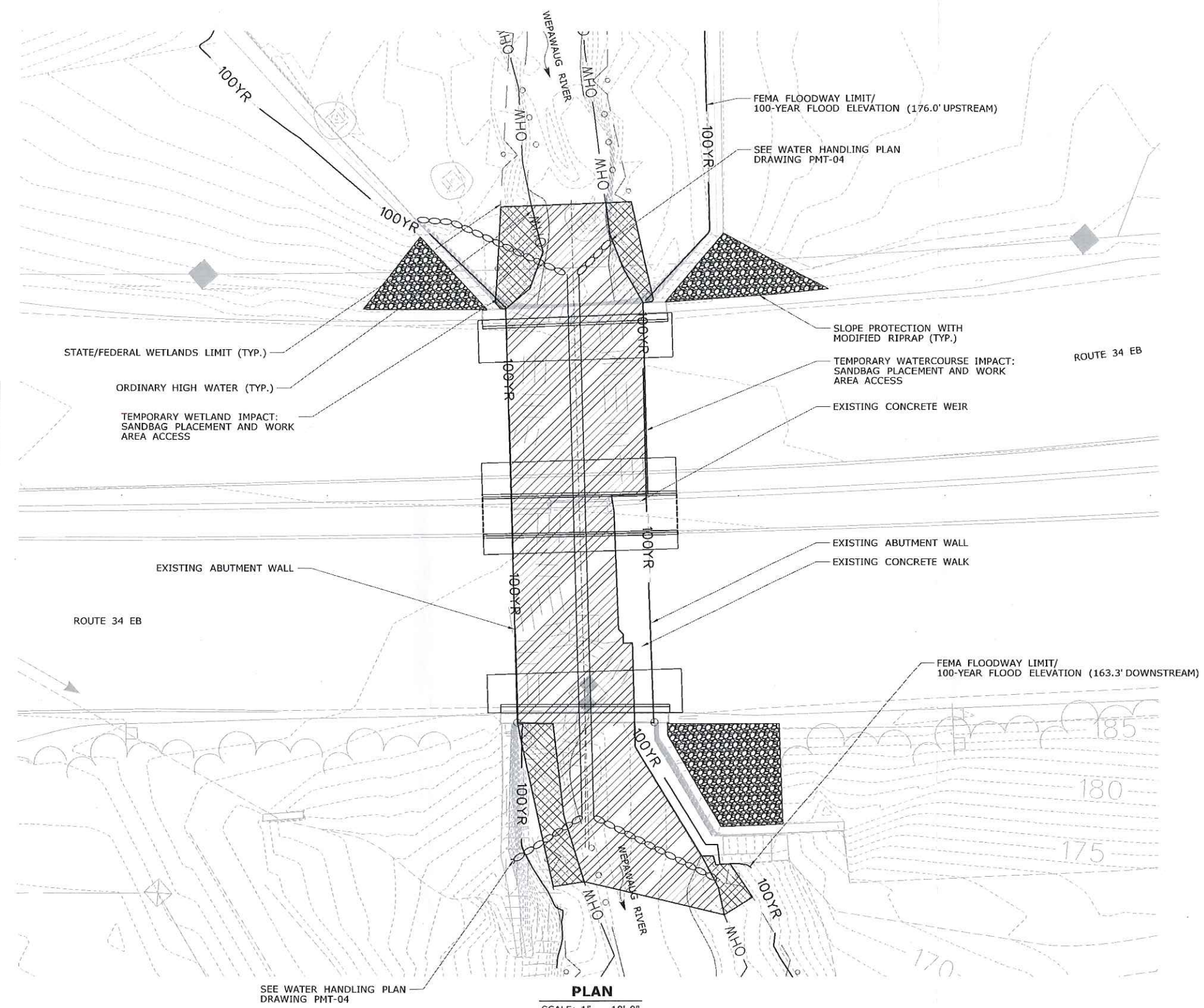
*TEMPORARY IMPACTS INCLUDE INSTALLATION OF SANDBAGS AND WORK AREA NEEDED FOR STRUCTURAL REPAIRS. NO CHANNEL WORK IS PROPOSED.

100-YEAR FLOODPLAIN AREA IMPACTS, CUT, & FILL INFO

AREA IMPACTS		VOLUME IMPACTS	
TEMPORARY IMPACT AREA	PERMANENT IMPACT AREA	EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
2885 S.F.	N/A	N/A	N/A

LEGEND

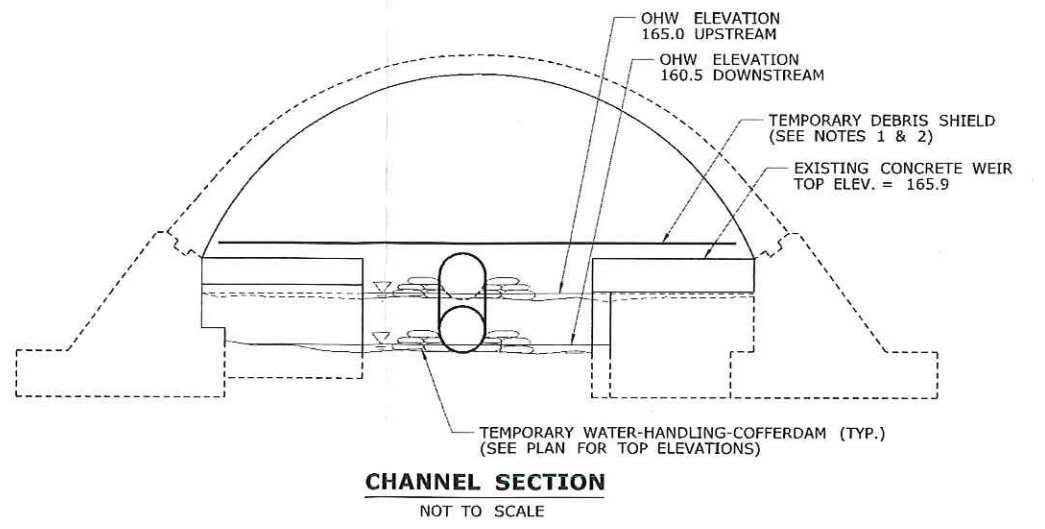
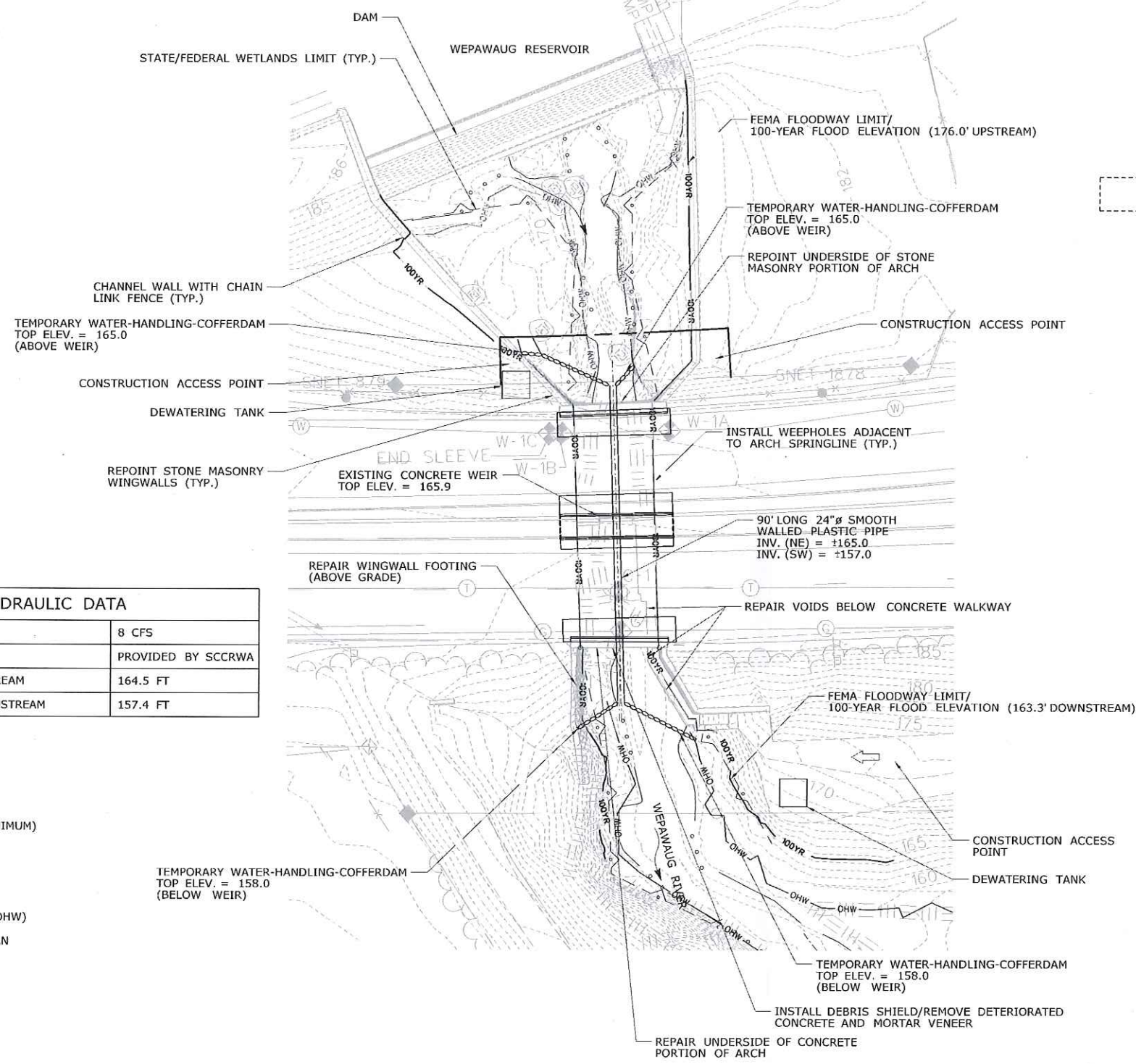
- TEMPORARY WETLAND IMPACT AREA
- TEMPORARY WATERCOURSE IMPACT AREA
- FEMA FLOODWAY LIMIT/ 100-YEAR FLOOD ELEVATION
- STATE/FEDERAL WETLANDS LIMIT
- ORDINARY HIGH WATER



ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018	DESIGNER/DRAFTER: JJF	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: 	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127
				CHECKED BY: AML					DRAWING NO. PMT-03
				SCALE AS NOTED	Filename: ...PMT-03 WETLAND IMPACT PLAN.dgn			DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	SHEET NO.



TEMPORARY HYDRAULIC DATA	
TEMPORARY DESIGN DISCHARGE	8 CFS
TEMPORARY DESIGN FREQUENCY	PROVIDED BY SCCRWA
TEMPORARY WATER SURFACE EL. UPSTREAM	164.5 FT
TEMPORARY WATER SURFACE EL. DOWNSTREAM	157.4 FT

OPENNESS RATIO:
 OR = OPEN AREA / CULVERT LENGTH
 OR = 163 SF / 71 FT = 2.3 FT
 2.3 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):
 BFW = 16 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 19.2 FT
 19.2 FT < 24 FT EXISTING CLEAR SPAN

TEMPORARY WATER-HANDLING-COFFERDAM
 TOP ELEV. = 158.0
 (BELOW WEIR)

PLAN
 SCALE: 1" = 20'-0"

TEMPORARY FLOW DIVERSION PIPE NOTES:

1. PIPE TO BE SMOOTH WALLED INTERIOR AND FLEXIBLE TO NAVIGATE THE FLOW LINE THROUGH THE WORK AREA.
2. BRACING WILL BE REQUIRED AT VARIOUS POINTS ALONG THE PIPE FOR STABILIZATION THROUGH THE WORK AREA.

TEMPORARY DEBRIS SHIELD NOTES:

1. TEMPORARY DEBRIS SHIELD TO BE REMOVED UPON COMPLETION OF WORK EACH DAY, AND/OR PRIOR TO ANY FORECASTED SEVERE STORM EVENT.
2. THE DEBRIS SHIELD SHALL PROTECT THE ENTIRE STREAM BED AREA BENEATH THE STRUCTURE AND SHALL BE AS SPECIFIED IN ITEM NO. 0602971A - DEBRIS SHIELD.

SUGGESTED SEQUENCE OF CONSTRUCTION:

REPAIR TO THE UNDERSIDE OF ARCH AND SUBSTRUCTURE CAN BE PERFORMED FROM BELOW WHILE MAINTAINING EXISTING TRAFFIC PATTERNS.

DURING REMOVAL OF EXISTING DETERIORATED CONCRETE AND MORTAR VENEER FROM THE ARCH UNDERSIDE, THE CONTRACTOR SHALL TAKE ADEQUATE MEASURES TO PREVENT ANY DEBRIS FROM ENTERING INTO THE WATERCOURSE. THE CONTRACTOR SHALL DESIGN AND INSTALL A TEMPORARY DEBRIS SHIELD. THE COST OF WHICH SHALL BE INCLUDED IN THE ITEM "DEBRIS SHIELD".

1. INSTALL TEMPORARY WATER-HANDLING-COFFERDAM AND INSTALL TEMPORARY FLOW DIVERSION PIPE AS SHOWN ON THE PLAN.
2. DIVERT WATER FROM WORK AREA BEHIND TEMPORARY WATER-HANDLING-COFFERDAM AS REQUIRED FOR REPAIRS.
3. REPAIR SUBSTRUCTURE TO THE SATISFACTION OF THE ENGINEER.
4. INSTALL TEMPORARY DEBRIS SHIELD BELOW EXISTING SPRINGLINE OF ARCH.
5. REMOVE DETERIORATED CONCRETE ALONG UNDERSIDE OF THE CONCRETE PORTION OF THE ARCH AND THE MORTAR VENEER ALONG THE UNDERSIDE OF THE STONE MASONRY PORTION OF THE ARCH.
6. REPAIR THE UNDERSIDE OF THE ARCH TO THE SATISFACTION OF THE ENGINEER.
7. REMOVE TEMPORARY DEBRIS SHIELD AND TEMPORARY WATER-HANDLING-COFFERDAM.

GENERAL NOTES:

1. IN CONJUNCTION WITH THE ENGINEER, COORDINATE WITH THE SOUTH CENTRAL CONNECTICUT REGIONAL WATER AUTHORITY (SCCRWA) TO RESTRICT FLOW FROM THE WEPAWAUG RESERVOIR DAM.
2. TEMPORARY WATER-HANDLING-COFFERDAM FOR CONTROL OF THE FLOW THROUGH THE BRIDGE SITE SHALL BE AS SHOWN ON THE PLANS OR AS REQUIRED BASED ON FLOWS RESULTING FROM COORDINATION WITH SCCRWA. PAYMENT SHALL BE AS SPECIFIED IN ITEM NO. 0204151A - HANDLING WATER.
3. ACCESS TO REPAIR THE SOUTHWEST WINGWALL FOOTING SHALL BE MADE AT THE CONSTRUCTION ACCESS POINT AT THE SOUTHEAST CORNER.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

DESIGNER/DRAFTER: JJF	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SIGNATURE/BLOCK:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127
CHECKED BY: AML		SCALE AS NOTED		DRAWING TITLE: WATER HANDLING PLAN	DRAWING NO. PMT-04
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018	Filename: .\PMT-04 WATER_HANDLING_PLAN.dgn	SHEET NO.



STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546



Determination of Effect for Historic Properties

Author: Mark McMillan **Date:** May 8, 2016

Project: State No.: 106-127
F.A.P. No.: TBD
Project Title: Rehabilitation of Bridge #00948
Route 34 over Wepawaug River
Town: Orange

Determination of Effect: **Conditional No Adverse Effect**

Project Description

Using a combination of federal and state funds, the Connecticut Department of Transportation (CTDOT) proposes to rehabilitate Bridge #00948, which carries Route 34 over the Wepawaug River in Orange. Recent inspections by the CTDOT’s Bridge Safety and Evaluation Unit have determined that the structure is in Poor condition. The structural deficiencies are primarily due to the deterioration of the masonry arch. The narrow roadway renders the bridge functionally obsolete and the existing parapets and guiderail attachments do not meet current crash safety standards.

Bridge #00948 is listed in the Connecticut Historic Bridge Inventory.¹ It is also categorized as “Possibly Eligible for the National Register” in the statewide bridge inventory maintained by CTDOT. For these reasons, a strategy of retaining and rehabilitating the bridge is proposed that includes:

- Installing a new concrete slab sections below the existing roadway
- Installing a new waterproof membrane
- Replacing the existing parapets with new safety shaped parapets
- Installing new endwalls at each corner of the bridge
- Increasing travel lane width by reconfiguring the roadway and median
- Removing the mortar veneer over the masonry of bridge arch
- Repointing mortar in masonry arch as needed
- Installing weep holes along the length of the structure
- Repairing the reinforced concrete substructure and wing walls

¹ Historic Resource Consultants, *Connecticut Historic Bridge Inventory Final Report: Preservation Plan*, State of Connecticut Department of Transportation (May 1991), pg. 134.

The proposed work will be performed in phases to allow the roadway to retain at least one lane of traffic in each direction throughout construction. It is unknown at this time whether acquisition or easements of property outside the existing road right of way will be required. There are aerial utilities on the north side of Route 34 that may require relocation to accommodate this project. Construction is scheduled to begin in Spring 2018 and will last approximately six months.

Technical Review of Project

Bridge #00948 incorporates two generations of bridges into a single structure. It was originally constructed in 1855 and then widened southward in 1940, effectively doubling the road capacity. Although the 1940 addition is comprised of reinforced concrete, its arched shape matches the dimensions and shape of the older masonry arch structure. The southern face and stepped wing walls are clad with masonry that mirror the construction of the 1855 portion of the bridge. The only deviation between the two sides is a stone staircase along the southwest wing wall. This provides access from a hiking trail to a platform beneath the bridge (Image 1). Under the bridge is a concrete weir (Image 2).

Taken as whole, the bridge presents a consistent design based on the 1855 masonry arch structure. The parapets of both sides of the bridge are composed of masonry or masonry-clad concrete. On the north side of the bridge, the parapets are masonry and are topped with brownstone capstones that still bear mason's tool marks (Image 3). The large stones appear to be in good condition and exhibit minimal loss or deterioration of material. The south side has a similar capstone, though the crisp edges and modest machine-made tool marks allow the two eras of stonework to be differentiated from each other. These features, as well as the arch ringstones, spandrel walls and parapets are specifically identified as character-defining features in the state *Preservation Plan*.

The majority of the bridge retains a high degree of integrity except that the original masonry arch was covered with a cement coating during the 1940 construction (Image 4). Despite this, the arch appears to be intact and remains as a functioning masonry arch structure. This represents a rare type of bridge within the state. There are only twelve bridges maintained by CTDOT that are older than Bridge #00948. It is 1 of 63 remaining nineteenth century bridges in Connecticut.

Given its age and the overall integrity of both the original structure and its 1940 addition, it is the professional opinion of the author that Bridge #00948 is eligible for the National Register of Historic Places under Criterion C. It is an extant example of a masonry arch bridge that is becoming increasingly rare. It is also an integral part of the Derby Turnpike (now Route 34 in this location) and may qualify for the NRHP under Criterion A (Pattern of History and Development).

The majority of the work proposed complies with both Connecticut's *Preservation Plan* and the Secretary of the Interior's *Standards*. However, the replacement of the masonry parapets with "safety shaped barriers" will diminish the bridge's historic character and thus constitute an Adverse Effect.

Area of Potential Effect

The area surrounding the subject bridge is comprised of the Wepawaug Reservoir to the north and property held by the Orange Land Trust to the south. To the east and west are moderate density residential developments of single family homes. Under the proposed rehabilitation, the overall dimensions and alignment of the bridge will remain unchanged. The travel lanes of the road will be increased by narrowing the median strip that separates the opposing lanes.

To accommodate traffic patterns during construction and changes to the vehicle lane widths, approximately 500 feet of approach roadway will be included in the overall Area of Potential Effect (APE). Within the APE are the following properties:

501 Derby Avenue

Abutting the north side of Bridge #00948 is a 75 acre parcel that is largely filled by the Wepawaug Reservoir and dam. The Wepawaug River enters the parcel from beneath the Wilbur Cross Parkway and ultimately continues beneath the subject bridge. Between 1909 and 1911, the Wepawaug dam was constructed as part of a larger diversion project (Image 5). The water impounded by the reservoir is conducted via an underground tunnel to the Maltby Lakes, located two miles to the west.² Aerial photographs show a channel at the southeast side of the reservoir that directs water to this tunnel.

Also at the southeast corner of the parcel is a two-story Colonial style house (Image 6). The house was built in 1820 and is clad with wood shingle siding. North of the house is stand-alone garage and wood shed. The reservoir and the structures on this parcel are co-owned by the South Central Regional Water Authority and New Haven Water Company.

Given its age and the integrity of its exterior, the house at 501 Derby Avenue appears to be NRHP-eligible under Criteria A and C. To avoid an Adverse Effect determination under Section 106 of the National Historic Preservation Act, efforts to avoid this property during construction should be incorporated in the undertaking's drawings and specifications.

959 Mapledale Road

At the southeast corner of Route 34 and Mapledale Road is a one story Ranch-style single family residence (Image 8). It was built in 1959 and is situated on 0.88 acre parcel. Aside from its age, the property does not exhibit qualities or associations that would meet NRHP eligibility requirements.

² Blair, Clarence M., *The Wepawaug River Diversion Works of the New Haven Water Company*, Connecticut Society of Civil Engineers, Twenty-Eighth Annual Meeting (1912).

“The Ravine”

Abutting the south side of Bridge #00948 is Parcel #89-1-6. This three-acre property is owned by the Orange Land Trust and known as “The Ravine” (Image 7). This natural rock formation is a natural channel for the river that attracted 19th century grist and woolen mills nearby. The land is currently vacant and owned by Orange Land Trust and is part of a larger conservation area/nature preserve owned jointly by the Town of Orange, Orange Land Trust, and Interservice Clubs of New Haven (Camp Cedarcrest).

Given the steep rocky terrain and very limited soil development, there are no archaeological resources within the APE that will be impacted by the project as it is proposed. There are no foreseeable impacts to historic resources under Section 106 of the National Historic Preservation Act. However, use of this land may require a Department of Transportation Act Section 4(f) review.

967 Green Circle

At the corner of Route 34 and Green Circle is a one-acre parcel with a two-story single family residence. The house is located 75 feet southwest of the subject bridge. It was built in 1993 and is not NRHP-eligible.

The sediments in the area of potential effect are composed of Agawam Fine Sandy Loam and Charlton-Chatfield Complex sediments. Factors such as proximity to water, topography, grade of slope and soil drainage are used to model the archaeological sensitivity of soils. Predictive models find the Agawam soils to be of potential high archaeological sensitivity, while the Charlton-Chatfield is low. This may be in part because the latter type of sediment is steeply sloped (15-45% grade) and described as “very rocky”.

The 1930 Griswold-Speiss map of reconstructed 1625 native settlements does not show any settlements in the vicinity of the project, nor are there any known archaeological sites within a mile of the project area. The archaeological potential within the more sensitive Agawam soils is reduced by several known instances of previous soil disturbances caused by the construction and expansion of the subject bridge and Route 34 and installation of utilities along this same route. After performing a field assessment of the project APE, it is the professional opinion of OEP’s archaeology staff that there are no intact, NRHP-eligible archaeological resources that would be impacted by the project as it is currently proposed.

Determination

Qualified architectural history staff from CTDOT’s Office of Environmental Planning (OEP) performed a field review of the subject bridge, conducted background research and reviewed the proposed project scope. Based on this, they have the following recommendations:

- Adhere to the general considerations outlined in the *Connecticut Historic Bridge Inventory: Preservation Plan (1991)*, which recommends that repairs to damaged or missing stone should seek “to duplicate the existing stonework as closely as possible”.

Replacement of the masonry parapets with a new modern shape and material will diminish the historic integrity of the bridge. In order to avoid an Adverse Effect determination, it is recommended that the original masonry be reincorporated into the new parapet design or that an alternative safety measure, such as a separate guiderail system, be used instead of a new parapet.

- Repointing work on the masonry wing walls and abutments will conform to the guidelines presented in Preservation Brief #2 “Repointing Mortar Joints in Historic Masonry Buildings”, produced by the National Park Service. For Bridge #00948, this will be a lime-cement mortar, rather than the 100% cement mortar which has been used on portions of the bridge. Cement mortar is not compatible with the strength and moisture permeability of the stone. There is no characteristic joint profile identified on this bridge, so a standard concave joint is recommended.
- Avoid the Colonial-style house at 910 Derby Avenue during construction. No equipment layup or staging should occur near this structure. It is understood that access to the bridge may require movement through this parcel. Provide a path and protective measures in the project’s drawings and specifications.
- Submit final design plans for the rehabilitation work to the Office of Environmental Planning and/or the State Historic Preservation Officer for review to ensure consistence with the guidelines of the Secretary of the Interior’s *Standards for Rehabilitation*.

If these stipulations can be met, the Office of Environmental Planning, in accordance with the Section 106 Programmatic Agreement, determines that the proposed rehabilitation work will have No Adverse Effect on Historic Properties under Section 106 of the National Historic Preservation Act.³



Mark McMillan
National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation

³ *Programmatic Agreement among the Federal Highway Administration, the Connecticut Department of Transportation, the Connecticut State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Implementation of Minor Transportation Projects*, signed October 26, 2012. Accessible online at: www.ct.gov/culturalresources



Image 1: 1940 southern (downstream) spandrel of Bridge #00948. The masonry clad concrete structure includes a staircase and walkway that provides access from the hiking trails to the underside of the bridge.



Image 2: Underside of Bridge #00948 with concrete weir.



Image 3: Capstone on north parapet of bridge with pecked marked tool patterns.



Image 4: Northwest corner of bridge arch. The original masonry is visible at the base of the arch where the board-formed concrete coating has eroded over time.



Image 5: This “ogee” dam is named for the S-shaped profile of its spillway. It was constructed in 1909-1911 to create the Wepawaug Reservoir and provide water to New Haven.



Image 6: House at 501 Derby Avenue. The house was built in 1820 and appears to be NRHP-eligible.



Image 7: Dedication boulder located near trail head on Mapledale Avenue.



Image 8: Single family residence at 959 Mapledale Road.

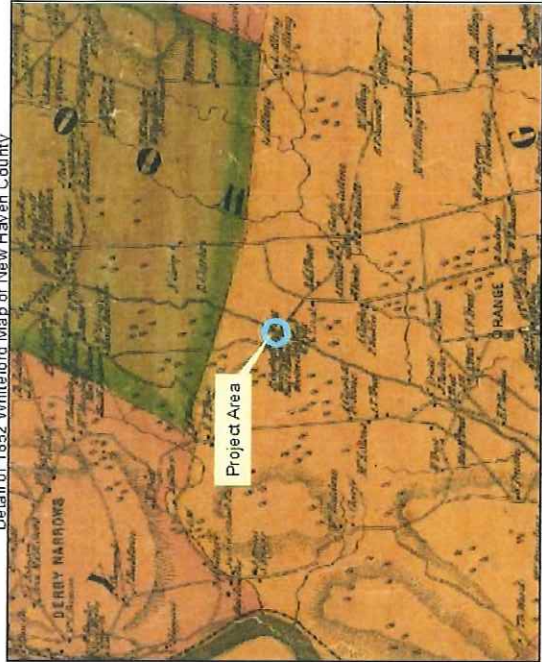
Detail of 2010 Aerial Photography



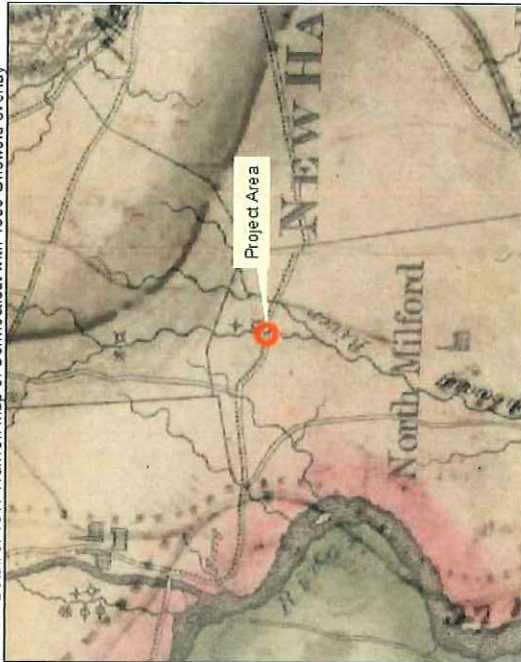
**Office of Environmental Planning
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Archaeological Resources**

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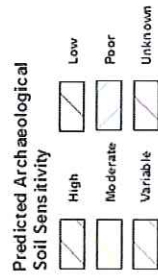
Detail of 1852 Whiteford Map of New Haven County



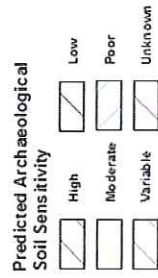
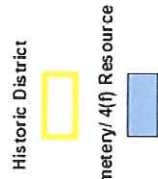
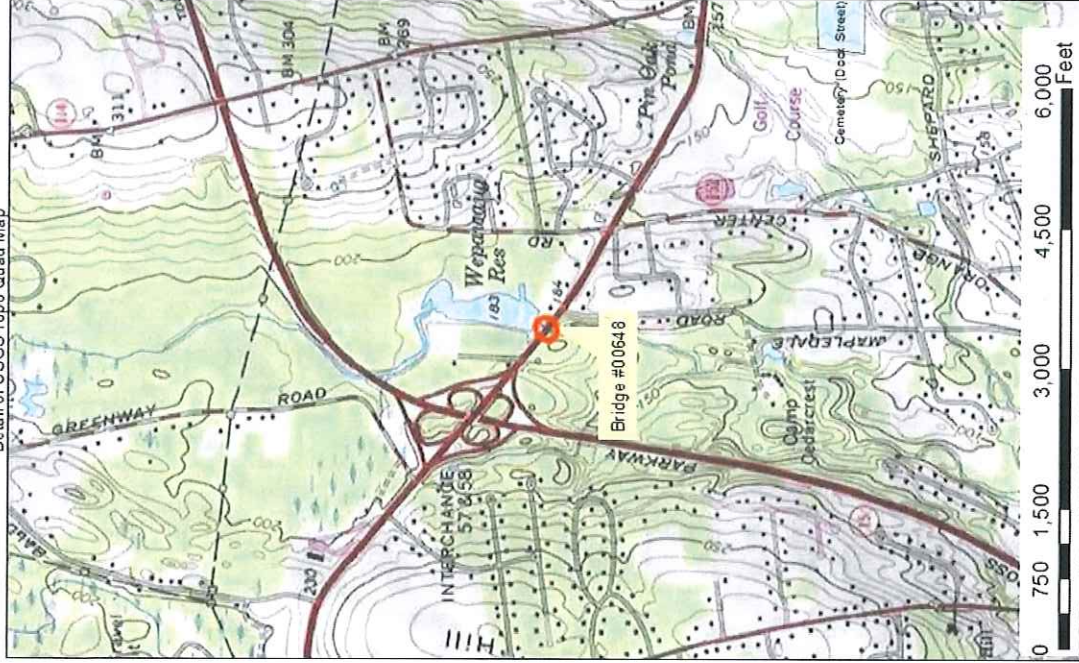
Detail of 1811 Warren Map of Connecticut with 1930 Griswold overlay



State Project No. 106-127
F.I.D.#: TBD
Rehabilitation of Bridge #00948
Route 34 over Wepawaug River
Orange



Detail of USGS Topo Quad Map



State Project No. 106-127
F.I.D.#: TBD
Rehabilitation of Bridge #00948
Route 34 over Wepawaug River
Orange

**Office of Environmental Planning
Environmental Review - Historical and
Archaeological Resources**

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From: christopher.hansen@dot.gov
Sent: Thursday, May 19, 2016 9:55 AM
To: McMillan, Mark J.
Subject: RE: Tribal Consultation: Project #106-127(Bridge #00948 Rehab;
Route 34 over Wepawaug River)

Hi Mark,

I have carefully reviewed CTDOT's proposed project #0106-0127 to rehabilitate bridge 00948 on Route 34 over the Wepawaug River in Orange. As per your attached documentation and email from May 17, I understand that the project is predominately rehabilitation within the existing right of way. As per the THPO Section 106 Agreements with FHWA-CT Division, dated January 4, 2012 and May 14, 2013, this project would generally fall within the category of "resurfacing or repair of existing ramps or roadways within the previously disturbed right-of-way," with no historic properties affected.

With this email, and taking all these items into consideration, the FHWA-CT Division has determined that tribal consultation would not be required for this project. Should any changes be made to the scope of work for this project that would involve additional ground disturbance beyond what is currently proposed, tribal consultation would have to be reconsidered.

Chris Hansen

Environmental Protection Specialist
Federal Highway Administration
Connecticut Division
860.494.7577
christopher.hansen@dot.gov

From: Mark.McMillan@ct.gov [<mailto:Mark.McMillan@ct.gov>]
Sent: Tuesday, May 17, 2016 4:40 PM
To: Hansen, Christopher (FHWA)
Subject: Tribal Consultation: Project #106-127(Bridge #00948 Rehab; Route 34 over Wepawaug River)

You have received 2 secure files from Mark.McMillan@ct.gov.
Use the secure links below to download.

Chris,

Attached is a Determination of (Conditional) No Adverse Effect on Historic Properties for Project #106-127 in Orange. The undertaking is predominantly a rehabilitation within the existing right of way. After performing a field review, we did not see much archaeological potential, nor is there any history of settlements or known dig sites in the area. My recommendation is no tribal consultation, but I will defer to FWHA's decision.

Mark

Mark McMillan

National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131

☎ (860) 594-2135

☎ (860) 594-3028 - Fax

✉ mark.mcmillan@ct.gov

Secure File Downloads:

Available until: **16 June 2016**

Click links to download:

[106-127 ER Request Orange.pdf](#)

1.65 MB, Fingerprint: 3e82c01912d95019816aa0e09b2d9fe0 ([What is this?](#))

[DetermEffect CNAE Orange106-127 20160508.pdf](#)

2.21 MB, Fingerprint: 0404de3b3961463dc591704931e79d02 ([What is this?](#))

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Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:	YES	NO
1. Does the project occur wholly outside of the WNS Zone ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency: FHWA – Connecticut Division

Applicant³ (Name, Email, Phone No.):

Connecticut Department of Transportation
Amanda M. Saul, Office of Environmental Planning
DOT.NLEB@ct.gov, (860)594-2939

Project Name: CTDOT0106-0127

Project Location (include coordinates if known): Route 34 over the Wepawaug River, Town of Orange; 41.3039, -73.0303

Basic Project Description (provide narrative below or attach additional information):

This project involves the rehabilitation of Bridge No. 00948 which carries Route 34 over the Wepawaug River in the town of Orange.

¹ <http://www.fws.gov/midwest/angered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/angered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion ⁴ ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	<0.1 ac	
If known, estimated acres ⁵ of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 ⁶		
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Amanda M. Saul

Digitally signed by Amanda M. Saul
DN: cn=Amanda M. Saul, o=Connecticut
Department of Transportation, ou=Office of
Environmental Planning,
email=amanda.saul@ct.gov, c=US
Date: 2018.10.15 08:01:16 -04'00'

Signature: _____

Date Submitted: 10/15/2018

⁴ Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

⁵ If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

⁶ If the activity includes tree clearing in June and July, also include those acreage in April to October.



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

December 27, 2018

Regulatory Division
File Number: **NAE-2018-03114**

Attn: Ms. Kimberly Lesay
Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

PROPOSED WORK/LOCATION: Place fill in waters of the U.S. areas in association with Rehabilitation of Bridge No. 00948, Route 34 over Wepawaug River in Orange, CT

We have reviewed your proposal to perform work within Corps of Engineers jurisdiction.

We have assigned this file number **NAE-2018-03114**. Please reference this number in any future correspondence with us.

Since your project may have only minimal individual and cumulative impacts on waters and wetlands of the United States, it is authorized by the Corps of Engineers under the Connecticut General Permits (GPs). This authorization does not obviate the need to obtain other federal, state, or local approvals.

We have recorded this project as permittee self-verification of the CT GPs in our database. You are responsible for ensuring the work meets the terms and conditions of the CT GPs.

Please contact Susan Lee of my staff at (978) 318-8494 if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Kevin R. Kotelly". The signature is written in a cursive style with a large, sweeping flourish at the end.

Kevin R. Kotelly, P.E.
Chief, Permits & Enforcement Branch
Regulatory Division

Copy furnished (via email): Andrew Davis/CTDOT-OEP; Michael Salter/CTDOT-OEP;
Jeff Caiola/CT DEEP, Chief-LWRD

**INTERDEPARTMENTAL
MESSAGE**

STATE OF CONNECTICUT

To	NAME, TITLE Central Permit Processing Unit, 11th Floor	DATE December 21, 2018
	AGENCY, ADDRESS Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106	
From	NAME, TITLE Kimberly C. Lesay, Transportation Assistant Planning Director	TELEPHONE (860) 594-2931
	AGENCY, ADDRESS Department of Transportation, 2800 Berlin Turnpike, Newington, CT 06131-7546	

Subject: State Project No. 106-127
Rehabilitation of Bridge No. 00948, Route 34 over Wepawaug River
Town of Orange
IWRD: General Permit for Water Resource Construction Activities

Attached is one original CT DEEP Request for Authorization Form for the General Permit for Water Resource Construction Activities associated with the above referenced project.

Any questions pertaining to this application may be directed to Mr. Andrew H. Davis, Transportation Supervising Planner of my staff, at 860-594-2157.

Attachments

**cc: Kimberly Lesay – Andrew H. Davis – Michael J. Salter
Rabih M. Barakat – Louis D. Bacho – Susan Morneault
Kevin Carifa – Andrew Piraneo
Dominic LaRosa, District 3**



**Connecticut Department of
Energy & Environmental Protection**

CPPU USE ONLY

App #: _____
 Doc #: _____
 Check #: _____

Permit Application Transmittal Form

Please complete this transmittal form in accordance with the instructions in order to ensure the proper handling of your application(s) and the associated fee(s). Print legibly or type.

Part I: Applicant Information:

- *If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, applicant's name shall be stated **exactly** as it is registered with the Secretary of State.
- If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

Applicant: **Connecticut Department of Transportation**
 Mailing Address: **2800 Berlin Turnpike, P.O. Box 317546**
 City/Town: **Newington** State: **CT** Zip Code: **06131-7546**
 Business Phone: **860-594-2931** ext.: _____
 Contact Person: **Kimberly C. Lesay** Phone: **860-594-2931** ext. _____
 E-Mail: **kimberly.lesay@ct.gov**

Applicant (check one): individual *business entity federal agency state agency municipality tribal
 *If a business entity, list type (e.g., corporation, limited partnership, etc.): _____
 Check if any co-applicants. If so, attach additional sheet(s) with the required information as supplied above.

Please provide the following information to be used for *billing purposes only*, if different:
 Company/Individual Name: _____
 Mailing Address: _____
 City/Town: _____ State: _____ Zip Code: _____
 Contact Person: _____ Phone: _____ ext. _____

Part II: Project Information

Brief Description of Project: *(Example: Development of a 50 slip marina on Long Island Sound)*
State Project No. 106-127, Rehabilitation of Bridge No. 00948, Route 34 over Wepawaug River
 Location (City/Town): **Orange**

Other Project Related Permits (*not* included with this form):

Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
Self Verification (GP 19)	ACOE	Submitted Concurrently			
FM General	CT DOT	12/04/18	12/05/18		

Part III: Individual Permit Application and Fee Information

New, Mod. or Renew	Individual Permit Applications	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	AIR EMISSIONS				
	New Source Review <input type="checkbox"/> Revision <input type="checkbox"/> minor mod	\$940.00			1 + 0
	Title V Operating Permits <input type="checkbox"/> Revision <input type="checkbox"/> minor mod <input type="checkbox"/> non-minor mod	none			1 + 0
	Title IV	none			1 + 0
	Clean Air Interstate Rule (CAIR)	none			1 + 0
	WATER DISCHARGES				
	To Groundwater	\$1300.00			1 + 1
	To Sanitary Sewer (POTW)	\$1300.00			1 + 1
	To Surface Water (NPDES)	\$1300.00			1 + 1
	WATER PLANNING AND MANAGEMENT				
	Dam Safety	none			1 + 2
	Domestic Sewage Treatment Works (For municipal and private sewage treatment facilities discharging to surface waters)	\$1300.00/ Mod = \$940			1 + 1
	Water Diversion (consumptive) and Registrations	★			1 + 5
	LAND AND WATER RESOURCES				
	Flood Management Certification	none			1 + 1
	Flood Management Certification Exemption	none			1 + 1
	Inland Wetlands and Watercourses (State Agencies Only)	none			1 + 5
	Inland 401 Water Quality Certification	none			1 + 5
	FERC- Hydropower Projects- 401 Water Quality Certification	none			
	Water Diversion (non-consumptive)	★			1 + 5
	Certificate of Permission	\$375.00			1 + 2
	Coastal 401 Water Quality Certification	none			1 + 2
	Structures and Dredging/and Fill/Tidal Wetlands	\$660.00			1 + 2
	WASTE MANAGEMENT				
	Aerial Pesticide Application	★			1 + 2
	Aquatic Pesticide Application	\$200.00			1 + 0
	CGS Section 22a-454 Waste Facilities	★			1 + 1
	Disruption of a Solid Waste Disposal Area	\$0			1 + 1
	Hazardous Waste Treatment, Storage and Disposal Facilities	★			1 + 1
	Marine Terminal License	\$100.00			1 + 0
	Stewardship	\$4000.00			1 + 1
	Solid Waste Facilities	★			1 + 1
	Waste Transportation	★			1 + 0
		Subtotal ➡	0	0	
	GENERAL PERMITS and AUTHORIZATIONS	Subtotals Page 3 & 4 ➡	0		
	Enter subtotals from Part IV, pages 3 - 6 of this form	Subtotals Page 5 ➡	1	None	
		Subtotals Page 6 ➡	0		
		TOTAL ➡	1	None	
	<input type="checkbox"/> Indicate whether municipal discount or state waiver applies. Less Applicable Discount ➡			State Waiver	
		AMOUNT REMITTED ➡		None	
Check # ➡	<input type="text"/>				Check or money order should be made payable to: "Department of Energy and Environmental Protection"

★ See fee schedule on individual application.

**Part IV: General Permit Registrations and Requests for Other Authorizations
Application and Fee Information**

✓	General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
AIR EMISSIONS					
<input type="checkbox"/>	Limit Potential to Emit from Major Stationary Sources of Air Pollution	\$2760.00			1 + 0
<input type="checkbox"/>	Diagnostic and Therapeutic X-Ray Devices (Medical X-Ray) Registration	\$190.00/Xray device			1 + 0
<input type="checkbox"/>	Radioactive Materials and Industrial Device Registration (Ionizing Radiation)	\$200.00			1 + 0
<input type="checkbox"/>	Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/>	License Revocation Request	\$0			★★
<input type="checkbox"/>	Other, (please specify):				
WATER DISCHARGES					
Categorical Industry User to a POTW					
<input type="checkbox"/>	Discharges ≥ 10,000 gpd	\$6250.00			1 + 0
<input type="checkbox"/>	Discharges < 10,000 gpd	\$3125.00			
Comprehensive Discharges to Surface Water and Groundwater					
<input type="checkbox"/>	Registration Only	\$625.00			1 + 0
<input type="checkbox"/>	Approval of Registration by DEEP	\$1250.00			
<input type="checkbox"/>	Domestic Sewage	\$625.00			1 + 0
<input type="checkbox"/>	Food Service Establishment Wastewater	No Registration			
Groundwater Remediation Wastewater					
<input type="checkbox"/>	Registration Only	\$625.00			1 + 0
<input type="checkbox"/>	Approval of Registration by DEEP	\$1250.00			
Miscellaneous Discharges of Sewer Compatible Wastewater					
<input type="checkbox"/>	Registration Only	\$500.00			1 + 0
<input type="checkbox"/>	Approval of Registration by DEEP	\$1000.00			
<input type="checkbox"/>	Nitrogen Discharges	No Registration			
<input type="checkbox"/>	Point Source Discharges from Application of Pesticides	\$200.00			1 + 0
<input type="checkbox"/>	Stormwater Associated with Commercial Activities	\$300.00			1 + 0
Stormwater Associated with Industrial Activities					
<input type="checkbox"/>	No Exposure Certification	\$250.00			1 + 0
<input type="checkbox"/>	<50 employees—see general permit for additional requirements	\$500.00			
<input type="checkbox"/>	>50 employees—see general permit for additional requirements	\$1000.00			
<input type="checkbox"/>	Stormwater & Dewatering Wastewaters—Construction Activities	★			1 + 0
<input type="checkbox"/>	Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	\$625.00			1 + 0
<input type="checkbox"/>	Stormwater from DOT Separate Storm Sewer Systems (DOT MS4)	\$0			1 + 0
<input type="checkbox"/>	Subsurface Sewage Disposal Systems Serving Existing Facilities	★★			1 + 0
<input type="checkbox"/>	Swimming Pool Wastewater - Public Pools and Contractors	\$500.00			1 + 0
Vehicle Maintenance Wastewater					
<input type="checkbox"/>	Registration Only	\$625.00			1 + 0
<input type="checkbox"/>	Approval of Registration by DEEP	\$1250.00			
<input type="checkbox"/>	Emergency/Temporary Authorization - Discharge to POTW	\$1500.00			1 + 0
<input type="checkbox"/>	Emergency/Temporary Authorization - Discharge to Surface Water	\$1500.00			1 + 0
<input type="checkbox"/>	Emergency/Temporary Authorization - Discharge to Groundwater	\$1500.00			1 + 0
<input type="checkbox"/>	Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal	0	0	

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.
(Contact numbers are provided in the instructions)

Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
AQUIFER PROTECTION PROGRAM				
<input type="checkbox"/> Registration for Regulated Activities	\$625.00			1 + 0
<input type="checkbox"/> Permit Application to Add a Regulated Activity	\$1250.00			1 + 0
<input type="checkbox"/> Exemption Application from Registration	\$1250.00			1 + 0
WATER PLANNING AND MANAGEMENT				
<input type="checkbox"/> Dam Safety Repair and Alteration: Non Filing	No Registration			
<input type="checkbox"/> Dam Safety Repair and Alteration: Filing – No PE	\$100.00			1 + 0
<input type="checkbox"/> Dam Safety Repair and Alteration: Filing – PE	\$200.00			1 + 0
<input type="checkbox"/> Dam Safety Repair and Alteration: Approval of Filing	\$250.00			1 + 0
<input type="checkbox"/> Diversion of Remediation Groundwater	No Registration			
<input type="checkbox"/> Diversion of Water for Consumptive Use: Reauthorization Categories	\$2500.00			1 + 0
<input type="checkbox"/> Diversion of Water for Consumptive Use: Authorization Required	\$2500.00			1 + 4
<input type="checkbox"/> Diversion of Water for Consumptive Use: Filing Only	\$1500.00			1 + 1
<input checked="" type="checkbox"/> Water Resource Construction Activities	★	1	None	1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Notice of High Hazard Dam or a Significant Hazard Dam	\$0			1 + 0
<input type="checkbox"/> Other, (please specify):				
LAND AND WATER RESOURCES				
Minor Coastal Structures				
<input type="checkbox"/> 4/40 Docks/Access Stairs	\$700.00			1 + 1
<input type="checkbox"/> Beach Grading	No Registration			
<input type="checkbox"/> Buoys or Markers	No Registration			
<input type="checkbox"/> Experimental Activities/Scientific Monitoring Devices	No Registration			
<input type="checkbox"/> Harbor Moorings	No Registration			
<input type="checkbox"/> Non-harbor Moorings	\$250.00			1 + 1
<input type="checkbox"/> Osprey Platforms and Perch Poles	No Registration			
<input type="checkbox"/> Pump-out Facilities	No Registration			
<input type="checkbox"/> Swim Floats	No Registration			
Coastal Maintenance				
<input type="checkbox"/> Backflow Prevention Structure	No Registration			
<input type="checkbox"/> Beach Grading/Raking	No Registration			
<input type="checkbox"/> Catch Basin Cleaning	No Registration			
<input type="checkbox"/> Coastal Remedial Activities Required by Order	\$700.00			1 + 1
<input type="checkbox"/> Coastal Restoration	No Registration			
<input type="checkbox"/> DEEP Boat Launch Infrastructures	No Registration			
<input type="checkbox"/> DOT Infrastructures	No Registration			
<input type="checkbox"/> Marina and Mooring Field Reconfiguration	\$700.00			1 + 1
<input type="checkbox"/> Minor Seawall Repair	No Registration			
<input type="checkbox"/> Placement of Cultch	No Registration			
<input type="checkbox"/> Reconstruction of Legally Existing Structure/Obstruction/Encroachment	\$300.00			1 + 1
<input type="checkbox"/> Removal of Derelict Structures	No Registration			
<input type="checkbox"/> Residential Flood Hazard Mitigation	\$100.00			1 + 1
<input type="checkbox"/> Temporary Access of Construction Vehicles/Equipment	No Registration			
<input type="checkbox"/> Programmatic General Permit	★			1 + 1
<input type="checkbox"/> Emergency/Temporary Authorization				
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal ➡	1	None

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.
(Contact numbers are provided in the instructions)

Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
WASTE MANAGEMENT				
<input type="checkbox"/> Addition of Grass Clippings at Registered Leaf Composting Facilities	\$500.00			1 + 0
<input type="checkbox"/> Beneficial Use Determination	★			1 + 0
<input type="checkbox"/> Collection and Storage of Post Consumer Paint	\$0			1 + 0
<input type="checkbox"/> Connecticut Solid Waste Demonstration Project	\$1000.00			1 + 0
Construct and Operate a Commercial Facility for the Management of Recyclable Materials and Certain Solid Wastes (Commercial GP)				
<input type="checkbox"/> Asbestos Containing Materials	\$1,250.00/\$ 825			1 + 0
<input type="checkbox"/> Ash Residue	\$1,250.00/\$ 825			1 + 0
<input type="checkbox"/> Clean Wood: Tier III	\$600.00/\$250			1 + 0
<input type="checkbox"/> Clean Wood: Tier II	\$250.00/\$125			1 + 0
<input type="checkbox"/> Construction and Demolition Waste: Tier III	\$1,250.00/\$825			1 + 0
<input type="checkbox"/> Construction and Demolition Waste: Tier II	\$600.00/\$250			1 + 0
<input type="checkbox"/> Non-RCRA Hazardous Waste/Compatible Solid Wastes	\$1,250.00/\$825			1 + 0
<input type="checkbox"/> Recyclables	\$500.00/\$250			1 + 0
<input type="checkbox"/> Universal Wastes/Compatible Solid Wastes	\$1,250.00/\$825			1 + 0
Contaminated Soil and/or Staging Management (Staging/Transfer)				
<input type="checkbox"/> New Registrations	\$250.00			1 + 0
<input type="checkbox"/> New Approval of Registrations	\$1500.00			1 + 0
<input type="checkbox"/> Renewal of Registrations	\$250.00			1 + 0
<input type="checkbox"/> Renewal of Approval of Registrations	\$750.00			1 + 0
<input type="checkbox"/> Disassembling Used Electronics	\$2000.00			1 + 0
<input type="checkbox"/> Leaf Composting Facility	\$0			1 + 1
<input type="checkbox"/> Municipal Transfer Station	\$800.00			1 + 1
<input type="checkbox"/> One Day Collection of Certain Wastes and Household Hazardous Waste	\$1000.00			1 + 0
<input type="checkbox"/> Sheet Leaf Composting Notification	\$0			★★
Special Waste Authorization				
<input type="checkbox"/> Landfill or RRF Disposal	\$660.00			
<input type="checkbox"/> Asbestos Disposal	\$300.00			1 + 0
<input type="checkbox"/> homeowner	\$0			
<input type="checkbox"/> Storage and Processing of Asphalt Roofing Shingle Waste	\$2500.00			1 + 0
<input type="checkbox"/> Storage and Processing of Scrap Tires for Beneficial Use	\$1250.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
REMEDATION				
<input type="checkbox"/> In Situ Groundwater Remediation: Enhance Aerobic Biodegradation	★			1 + 2
<input type="checkbox"/> In Situ Groundwater Remediation: Chemical Oxidation	\$500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★			★★
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal →	0	0

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.

(Contact numbers are provided in the instructions)

Affirmative Action, Equal Employment Opportunity and Americans with Disabilities

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action/Equal Opportunity Employer that is committed to complying with the requirements of the Americans with Disabilities Act (ADA). Please contact us at (860) 418-5910 or deep.accommodations@ct.gov if you: have a disability and need a communication aid or service; have limited proficiency in English and may need information in another language; or if you wish to file an ADA or Title VI discrimination complaint.



Statewide Inland Wetlands & Watercourses Activity Reporting Form

*Please complete and mail this form in accordance with the instructions on pages 2 and 3 to:
DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106
Incomplete or incomprehensible forms will be mailed back to the municipal inland wetlands agency.*

PART I: Must Be Completed By The Inland Wetlands Agency

- DATE ACTION WAS TAKEN: year: Click Here for Year month: Click Here for Month
- CHOOSE ACTION TAKEN (see instructions for codes): Click Here to Choose a Code
- WAS A PUBLIC HEARING HELD (check one)? yes no
- NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
(type name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

- TOWN IN WHICH THE ACTION IS OCCURRING (type name): Orange
does this project cross municipal boundaries (check one)? yes no
if yes, list the other town(s) in which the action is occurring (type name(s)): _____, _____
- LOCATION (click on hyperlinks for information): USGS quad map name: Ansonia or quad number: 94
subregional drainage basin number: 5307
- NAME OF APPLICANT, VIOLATOR OR PETITIONER (type name): State of CT, Dept. of Transportation
- NAME & ADDRESS / LOCATION OF PROJECT SITE (type information): Bridge No. 00948, Route 34 over Wepawaug River
briefly describe the action/project/activity (check and type information): temporary permanent description: Rehabilitate deteriorated condition of the masonry arch veneer.
- ACTIVITY PURPOSE CODE (see instructions for codes): N
- ACTIVITY TYPE CODE(S) (see instructions for codes): 1, 2, 9, NA
- WETLAND / WATERCOURSE AREA ALTERED (type acres or linear feet as indicated):
wetlands: 0.00 acres open water body: 0.00 acres stream: 0.00 linear feet
- UPLAND AREA ALTERED (type acres as indicated): 0.00 acres
- AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (type acres as indicated): 0.00 acres

DATE RECEIVED:

PART III: To Be Completed By The DEEP

DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO

FORM CORRECTED / COMPLETED: YES NO



**Connecticut Department of
Energy & Environmental Protection**
Bureau of Water Protection & Land Reuse
Inland Water Resources Division

Request for Authorization Form for the General Permit for Water Resource Construction Activities

Please complete this form in accordance with the general permit (DEEP-IWRD-GP-013) to ensure the proper handling of your request. Print or type unless otherwise noted. You must submit the fee along with this completed form.

CPPU USE ONLY
App #: _____
Doc #: _____
Check #: _____

Part I: Request and Fee Type

Check the appropriate box identifying the request type.

<input type="checkbox"/> \$5000 [#1757] for each Request for Authorization for Section 3(a)(1), (a)(2), (a)(3), (a)(4), (a)(5), (a)(6), or (a)(7) activities under the subject general permit, unless you qualify as one of the following: <input type="checkbox"/> \$2500 for any municipality <input type="checkbox"/> \$2500 for electronic filing*	<input checked="" type="checkbox"/> \$2500 [#1758] for each Request for Authorization for Section 3(a)(8) or 3(a)(9) activities under the subject general permit, unless you qualify as one of the following: <input type="checkbox"/> \$1250 for any municipality <input type="checkbox"/> \$1250 for electronic filing*
---	--

**In order to file electronically, ALL supporting documents under Part VI of this application must be submitted in an electronic format on a CD, along with this original completed application in hard copy.*

The request will not be processed without the fee. The fee shall be non-refundable and shall be paid by check or money order to the Department of Energy and Environmental Protection.

Town where site is located: Orange

Brief Description of Project: Project No. 106-127, Rehabilitation of Bridge No. 00948

The proposed rehabilitation consists of constructing cast-in-place slab sections on the roadway above the arch. The mortar veneer will be removed and the masonry joints will be re-pointed as needed. Weep holes will be installed, and the substructure and wingwalls will be repaired as required.

Part II: Requestor Information

- If a requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, requester's name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of State's database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)
- If a requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).
- If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the [Request to Change Company/Individual Information](#) to the address indicated on the form. If there is a change in name of the entity holding a DEEP license or a change in ownership, contact the Office of Planning and Program Development (OPPD) at 860-424-3003. For any other changes you must contact the specific program from which you hold a current DEEP license.

1. Requester Name: State of Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike, P.O. Box 317546

City/Town: Newington

State: CT Zip Code: 06131-7546

Business Phone: 860-594-2931

ext.:

Contact Person: Kimberly Lesay

Phone: 860-594-2931 ext.

E-mail: kimberly.lesay@ct.gov

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject request. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

a) Requester Type (check one):

individual federal agency state agency municipality tribal

*business entity (*If a business entity complete i through iii):

i) check type: corporation limited liability company limited partnership
 limited liability partnership statutory trust Other: _____

ii) provide Secretary of the State business ID #: _____ This information can be accessed at database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)

iii) Check here if your business is **not** registered with the Secretary of State's office.

Check here if any co-registrants. If so, attach additional sheet(s) with the required information as requested above.

b) Requester's interest in property at which the proposed activity is to be located:

site owner option holder lessee easement holder operator

other (specify): _____

Part II: Requestor Information (continued)

2. Billing contact, if different than the requester.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Contact Person:

Title:

Email:

3. Primary contact for departmental correspondence and inquiries, if different than the requester.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Contact Person:

Title:

Email:

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject request. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

4. Attorney or other representative, if applicable:

Firm Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Attorney:

Email:

5. Site Owner, if different than the requester.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Contact Person:

Title:

Email:

Part II: Requestor Information (continued)

6. Engineer(s) or other consultant(s) employed or retained to assist in preparing the request or in designing or constructing the activity.

Name: **Close, Jensen and Miller, P.C.**

Mailing Address: **1137 Silas Deane Highway**

City/Town: **Wethersfield**

State: **CT**

Zip Code: **06109**

Business Phone: **860-563-9375**

ext.

Contact Person: **Aija Zeidenbergs**

Title: **Environmental Coordinator**

Email: **azeidenbergs@gmail.com**

Service Provided: **Permit Application and Hydrology**

Check here if additional sheets are necessary, and label and attach them to this sheet.

Part III: Site Information

1. SITE NAME AND LOCATION

Name of Site : **Bridge No. 00948**

Street Address or Location Description: **Route 34 over Wepawaug River**

City/Town: **Orange**

State: **CT**

Zip Code: **06477**

Tax Assessor's Reference: Map **N/A**

Block **N/A**

Lot **N/A**

Latitude and longitude of the exact location of the proposed activity in degrees, minutes, and seconds or in decimal degrees: Latitude: **41 18' 13.68"N** Longitude: **73 01' 48.36"W**

Method of determination (check one):

GPS USGS Map Other (please specify):

If a USGS Map was used, provide the quadrangle name: **Ansonia**

2. INDIAN LANDS: Is or will the facility be located on federally recognized Indian lands? Yes No

3. COASTAL BOUNDARY: Is the activity which is the subject of this registration located within the coastal boundary as delineated on DEEP approved coastal boundary maps? Yes No

If yes, and this registration is for a new authorization, or a modification of an existing authorization where the physical footprint of the subject activity is modified, you must submit a [Coastal Consistency Review Form](#) (DEEP-APP-004) with your registration as Attachment C.

Information on the coastal boundary is available at www.cteco.uconn.edu/map_catalog.asp (Select the town and then select coastal boundary. If the town is not within the coastal boundary you will not be able to select the coastal boundary map.) or the local town hall or on the "Coastal Boundary Map" available at DEEP Maps and Publications (860-424-3555).

Part III: Requestor Information (cont.)

6. Engineer(s) or other consultant(s) employed or retained to assist in preparing the request or in designing or constructing the activity.

Name: Stantec Consulting Services Inc.

Mailing Address: 55 Church Street, Suite 601

City/Town: New Haven

State: CT Zip Code: 06510-3014

Business Phone: 203-495-1645

ext. 7062 Fax:

Contact Person: Andrew Lassard

Title: Project Manager

Service Provided: Senior Associate

Part III: Site Information (continued)

4. **ENDANGERED OR THREATENED SPECIES:** According to the most current "State and Federal Listed Species and Natural Communities Map", is the project site located within an area identified as a habitat for endangered, threatened or special concern species? Yes No Date of Map: **Dec 2017**

If yes, complete and submit a [Request for NDDB State Listed Species Review Form](#) (DEEP-APP-007) to the address specified on the form. **Please note NDDB review generally takes 4 to 6 weeks and may require additional documentation from the registrant.**

A **copy** of the completed *Request for NDDB State Listed Species Review Form* and the CT NDDB response **must** be submitted with this completed registration as Attachment D.

For more information visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB at 860-424-3011.

5. **AQUIFER PROTECTION AREAS:** Is the site located within a mapped Level A or Level B [Aquifer Protection Area](#), as defined in CGS section 22a-354a through 22a-354bb?

Yes No If yes, check one: Level A or Level B

If **Level A**, are any of the [regulated activities](#), as defined in RCSA section 22a-354i-1(34), conducted on this site? Yes No

If yes, and your business is **not** already registered with the Aquifer Protection Program, contact the [local aquifer protection agent](#) or DEEP to take appropriate actions.

For more information on the Aquifer Protection Area Program visit the DEEP website at www.ct.gov/deep/aquiferprotection or contact the program at 860-424-3020.

6. **CONSERVATION OR PRESERVATION RESTRICTION:** Is the property subject to a conservation or preservation restriction? Yes No

If Yes, proof of written notice of this registration to the holder of such restriction or a letter from the holder of such restriction verifying that this registration is in compliance with the terms of the restriction, must be submitted as Attachment E.

Part IV: Construction Activity Details

- Proposed Date of Initiation of Activity: Spring 2019
- Anticipated Date of Completion: Fall 2019
- Name of the wetland or watercourse involved with or adjacent to the subject activity:
Wepawaug River
- Is the subject activity within a watercourse or floodplain? Yes No
- Will the subject activity be within a FEMA floodway? Yes No
- If the project requires a Flood Management Certification for the subject activity, provide the Flood Management Certification Number: FM General issued 12/05/18

Part IV: Construction Activity Details (continued)

7. Disturbance to wetlands, watercourses and flood plains:

Wetlands (acres):

excavation: 0.063 ac. (temporary) fill: 0.00 ac. (permanent)
total disturbance: 0.063 ac. (total)

Floodplain (cubic yards):

excavation: 0 fill: 0 net: 0

Watercourse (linear feet): 120 ft.

8. Describe the present and intended use(s) of the property at which the subject activity will be conducted and the reason for conducting or maintaining the activity.

See attached sheets 6A and 6B.

9. Describe all natural and manmade features impacted by the subject activity, including wetlands, watercourses, fish and wildlife habitat, floodplains, and structures and appurtenances thereto, and the impact of the subject activity on such features.

See attached sheet 6B.

Check here if additional sheets are necessary, and label and attach them to this sheet.

Part IV: Construction Activity Details (Continued)

8. Describe the present and intended use(s) of the property at which the subject activity will be conducted and the reason for conducting or maintaining the activity.

This project involves the rehabilitation of Bridge No. 00948, which carries Route 34 over Wepawaug River in Orange. The structure, built in 1855 and rehabilitated in 1940, is a single span hybrid arch structure with approximately 11 feet of fill above the arch. The original structure consists of a masonry arch and the rehabilitation extended the structure downstream with a reinforced concrete arch to widen the roadway above. As part of the rehabilitation, the existing masonry arch underside was covered with a mortar veneer. The substructure consists of concrete footings and wingwalls. The bridge carries two lanes of traffic with narrow shoulders in each direction separated by an approximately 8-foot wide raised median. The curb-to-curb width over the structure, in each direction of traffic, is 29 feet. The travel way consists of approximately 22 feet of reinforced concrete pavement with a bituminous concrete overlay and full depth bituminous concrete shoulders. The out-to-out width of the structure is 74 feet. There are no sidewalks on the bridge or approaches. The structure has a span length of 24 feet with no skew relative to the river below. There is a concrete walkway located under the structure which travels along the southeast wingwall and east abutment. The sidewalk ends at a weir located under the bridge at the joint between the original structure and the 1940 addition. The 2015 Average Daily Traffic (ADT) on the bridge is 34,600 vehicles.

The proposed rehabilitation project consists of constructing cast-in-place reinforced concrete slab sections in the areas of the shoulders and median, doweled into the existing concrete pavement slabs within the roadway sections, thus creating a full width concrete slab across the entire length of the bridge. New membrane waterproofing and bituminous overlay will be placed on top of the slab. This slab will be utilized to reduce water infiltration to the arch structure below. The existing parapets will be retained but modified with new safety shaped parapets constructed on the inward side so as to meet current crash standards with the new concrete shoulder slabs appropriately designed to carry all required load conditions. End walls will be added at each corner of the bridge. The roadway width will be increased so as to provide standard width shoulders by reducing the median width over the structure. The mortar veneer on the underside of the masonry arch will be removed and the underlying masonry joints will be re-pointed as needed. Weep holes will be installed at the spring line along the entire length of the structure to reduce water flow through the joints. The reinforced concrete substructure and wingwalls will be repaired as required.

The proposed rehabilitation is necessary because the existing structure is structurally deficient primarily due to the deteriorated condition of the masonry arch veneer. The veneer has areas of spalling with evidence of active leakage. Additionally, the existing parapets and guiderail attachments are substandard. The existing mortar veneer covering the masonry portion of the structure is to be removed and weep holes are to be installed at the spring line along the entire length of the structure. This work will require a debris shield to be put in place by the Contractor as well as a temporary flow diversion pipe with temporary water handling cofferdams at the inlet and outlet in order to allow for the installation of the weep holes in a dry condition.

Prior to the start of the primary construction activities, a pre-stage will be necessary to rebuild the existing shoulder areas for stage construction traffic, and to identify the exact location and condition of the existing concrete pavement. The pre-stage work will be accomplished during allowable daily off-peak hours or by utilizing weekend closures of one lane of traffic.

The primary construction will be performed in three main stages while maintaining two lanes of traffic in each direction during all peak hour times. Stage 1 will consist of moving traffic to the outside areas of the existing bridge while constructing the reinforced concrete slab in the existing median and inside shoulder areas. Stage 1 may require sub-stages B & C due to the exact location of the existing concrete pavement which will be verified during the pre-stage activities. If the sub-stages are required they will be accomplished utilizing weekend closures of one lane of traffic. Stage 2 will consist of moving two (2) lanes of traffic in each direction to the center area of the bridge while constructing the reinforced concrete slabs in the outside shoulder areas. Stage 3 will consist of the construction of the

8. Describe the present and intended use(s) of the property at which the subject activity will be conducted and the reason for conducting or maintaining the activity.

new concrete median barrier with traffic utilizing the outside areas of the rehabilitated structure. Repairs to the substructure and arch can be performed from below while utilizing off-peak lane closures as required.

The aerial utilities along the north side of Route 34 will not require relocation. There are underground facilities at the site consisting of water, gas, and communication lines. The water main is in an existing steel sleeve and communication lines are in conduit and as such may remain in place unaffected for the most part by the proposed construction activities. The gas line will be relocated adjacent to the existing 6" main and placed in a steel conduit sleeve for future removal and replacement without the need to disrupt the new waterproof slab over the rehabilitated structure. This work will take place while the stage 2 maintenance and protection of traffic scenario is in effect. The anticipated construction duration is approximately 6 months and is scheduled to take place during the 2019 construction season.

9. Describe all natural and manmade features impacted by the subject activity, including wetlands, watercourses, fish and wildlife habitat, floodplains, and structures and appurtenances thereto, and the impact of the subject activity on such features.

The contributing drainage area at the Bridge No. 00948 is approximately 7.83 square miles. Approximately 70% of the watershed area is characterized as forested area. The remaining 30% is split between agricultural field, turf grasses, developed areas and wetlands. The total drainage path length measures approximately 6.78 miles. The watershed has an average main channel slope of approximately 44.02 feet/mile. The topography of Orange, located in New Haven County, is mostly upland terrain, with river valleys and coastal lowlands. The soil generally falls into one of two categories, New England Upland in the western and eastern parts of the county or Connecticut Valley Lowlands soils in the central part of the county. The upland soil is predominately well drained glacial till and bedrock, while the lowlands soil is predominately well drained glacial stratified drift. The regulated resources in the area include State Regulated Watercourse and Inland Wetlands, Federally Regulated Wetlands and Waters of the U.S.

According to the May 16, 2017, Map Number 09009C0417J, Town of Orange New Haven County Flood Insurance Rate Map, the project is located in a FEMA Zone AE and a Floodway with a regulatory and floodway elevation of 164.3 ft. NGVD 1929 datum. Coordination has taken place with CT DEEP Fisheries Division and there are no fisheries resource issues of concern with the construction activities at the bridge

Impacts to the stream will be minimized through adherence to the Form 817, Section 1.10 Best Management Practices (BMP's), and the 2004 Stormwater Quality Manual. During construction, proper water handling measures will be implemented to allow work to occur in the areas confined within those water handling devices. Sedimentation and Erosion Control Systems will be installed as necessary to limit disturbances to protect the wetlands and watercourses through adherence to the 2002 Erosion and Sedimentation Guideline Manual.

There are no permanent impacts to the wetlands and watercourse. Temporary impacts below the ordinary high water line will amount to 2,380 sq. ft. (0.055 acres). Temporary impacts to the inland wetlands will amount to 370 sq. ft. (0.008 acres). Temporary impacts are as a result of the placement of a temporary flow diversion pipe with temporary water handling cofferdams at the inlet and outlet.

Part V: Supporting Documents

Check the applicable box below for each attachment being submitted with this request. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name as indicated on this request. ***In order to file electronically, ALL supporting documents must be submitted in an electronic format on a CD with this original completed application in hard copy.***

- Attachment A: Location Map: A depiction, on an 8.5" x 11" copy of the relevant portion of the most recent version of the United States Geologic Survey topographic map (Scale 1:24,000), of the exact location of the property at which such activity will be conducted.
- Attachment B: Site plan pursuant Section 4(c) (2) (l) of the subject general permit.
- Attachment C: Coastal Consistency Review Form (DEEP-APP-004), if applicable.
- Attachment D: Copy of the completed Request for NDDB State Listed Species Review Form (DEEP-APP-007) and the NDDB response, if applicable.
- Attachment E: Conservation or Preservation Restriction Information, if applicable.
- Attachment F: A copy of the Category 2 approval letter from the Army Corps of Engineers, or a copy of the Appendix 1A: Category 1 Certification Form filed with the US Army Corps of Engineers, if applicable.
- Attachment G: Drainage Maintenance Plan, Trail Maintenance Plan, Boat Launch Maintenance Plan, or Beach Maintenance Plan for Inland Beaches as defined in Section 2 of the subject general permit, if applicable.
- Attachment H: Other information provided by requester (list): Flood Insurance Rate Map, NDDB Map, Inland Fisheries Division Coordination, and Site Photos.

Part VI: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided. If the requester is the preparer, please mark N/A in the spaces provided for the preparer.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I certify that this general permit request for authorization is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

I understand that the subject activity is authorized only on or after the date the commissioner issues a written approval of registration with respect to such activity.

I certify that a complete copy of this request for authorization, including all documents attached thereto, was sent by regular or certified mail or was hand delivered to the municipal wetlands agency, zoning commission, planning commission or combined planning and zoning commission, and conservation commission of each municipality which is or may be affected by the subject activity.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."


Signature of Requester

12-21-2018
Date

Thomas J. Maziarz
Name of Requester (print or type)

Bureau Chief - Policy and Planning
Title (if applicable)


Signature of Preparer (if different than above)

12/13/18
Date

Aija Zeidenbergs
Name of Preparer (print or type)

Environmental Coordinator
Title (if applicable)

Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet. You must include signatures of any person preparing any report or parts thereof required in this registration (i.e., professional engineers, surveyors, soil scientists, consultants, etc.)

Note: Please submit this completed Request for Authorization, Fee, and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

You must submit a complete copy of this completed request for authorization, including supporting documents, to the municipal wetlands agency, zoning commission, planning commission or combined planning and zoning commission, and

conservation commission of each municipality which is or may be affected by the subject activity.

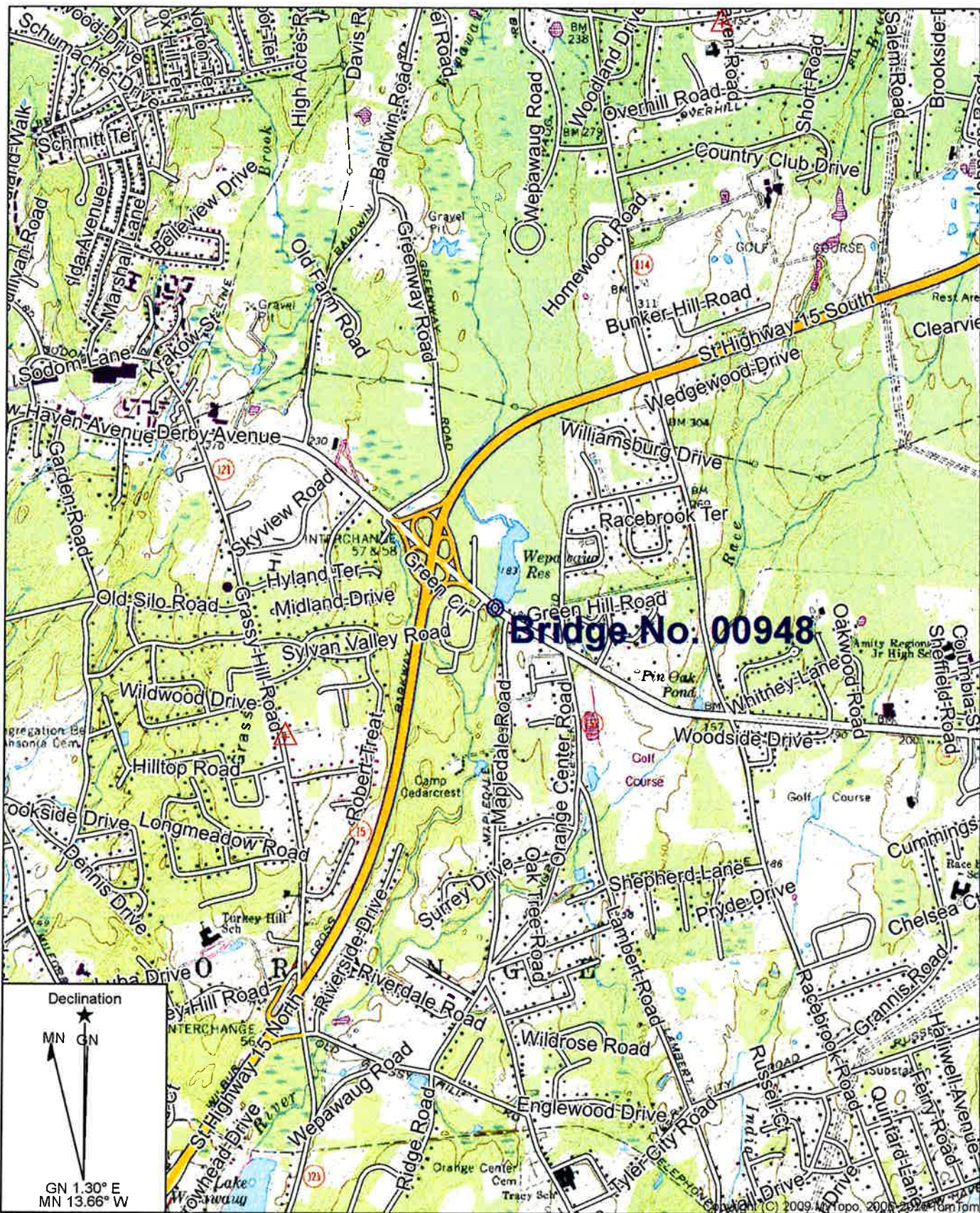
Attachment A: Location Map

General Permit for Water Resource Construction Activities

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

List of Attachments

- U.S.G.S. Topographic Quadrangle Map No. 94
QUAD: Ansonia
Scale: 1"=2,000'
Dated: January 29, 2015



Map Name: ANSONIA
 Print Date: 01/29/15
 Scale: 1 inch = 2,000 ft.
 Map Center: 041° 18' 13.55" N, 073° 01' 50.65" W

Bridge No. 00948
 Route 34 over Wepawaug River
 Orange, CT

Attachment B: Site Plan

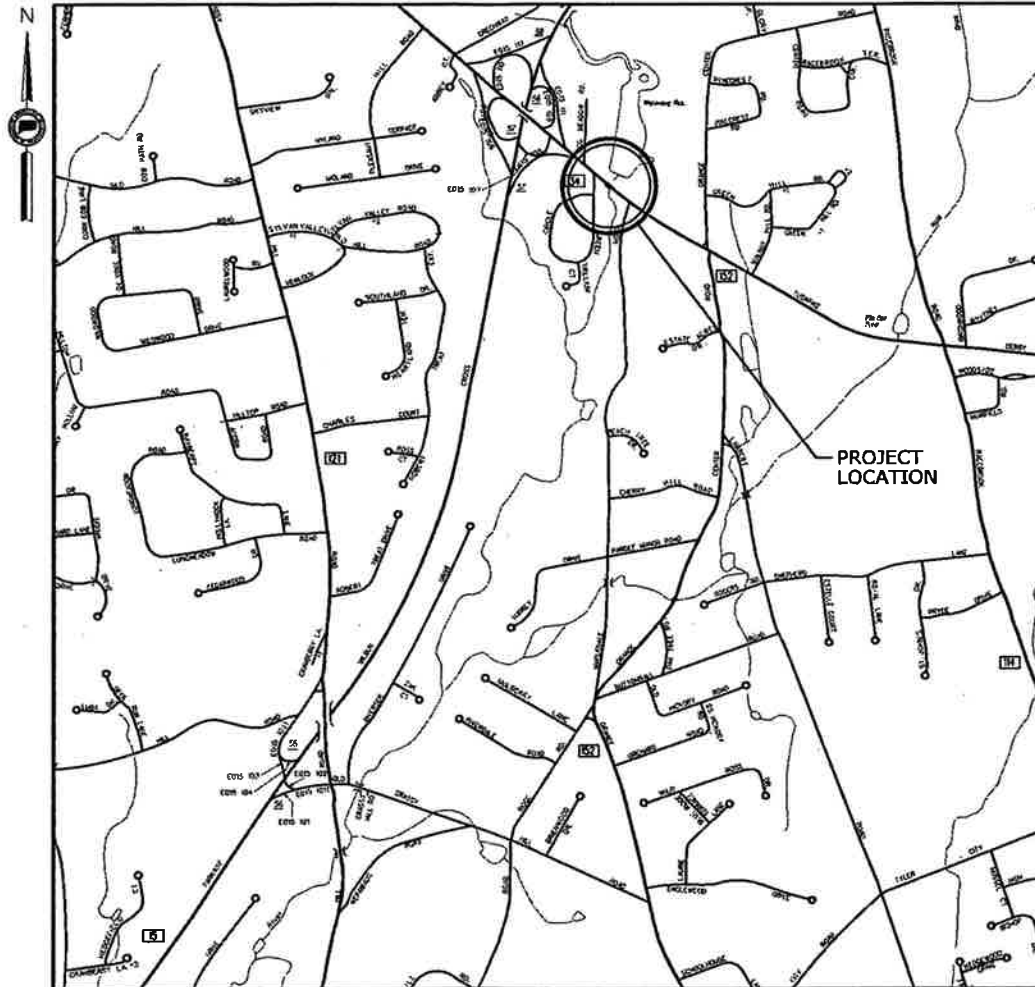
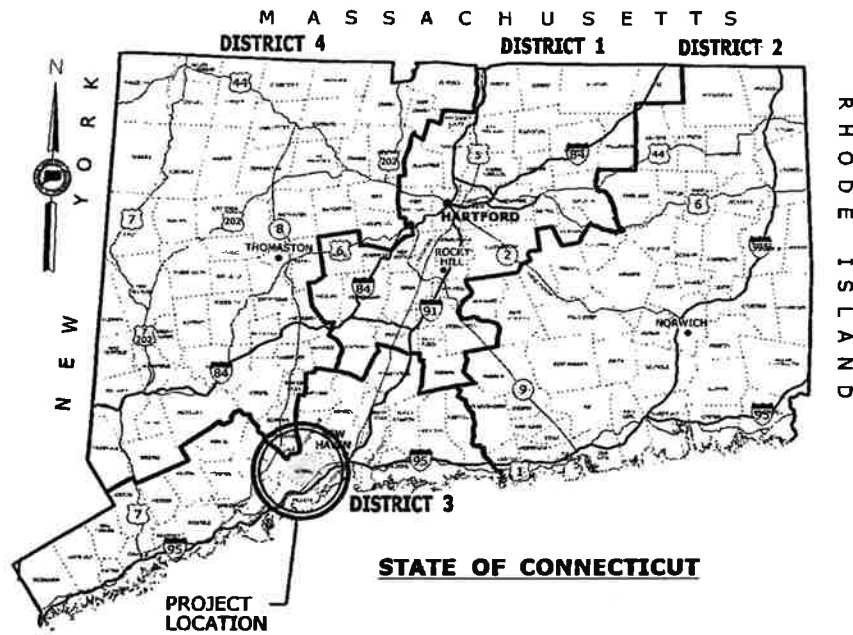
General Permit for Water Resource Construction Activities

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Route 34 over Wepawaug River

List of Plan Sheets and Drawings

PMT-01	Title Sheet	December 2018
PMT-02	Roadway Plan	December 2018
PMT-03	Wetlands/Watercourse Impact Plan	December 2018
PMT-04	Water Handling Plan	December 2018

ENVIRONMENTAL PERMIT PLANS PROJECT NO. 106-127 REHABILITATION OF BRIDGE 00948 IN THE TOWN OF ORANGE



LOCATION PLAN

1" = 1000'

GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1927 VERTICAL DATUM BASED ON NGVD OF 1929.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGE, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	ROADWAY PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	WATER HANDLING PLAN

DESIGNED BY:

STANTEC CONSULTING SERVICES INC.
55 CHURCH STREET, SUITE 601
NEW HAVEN, CT 06510

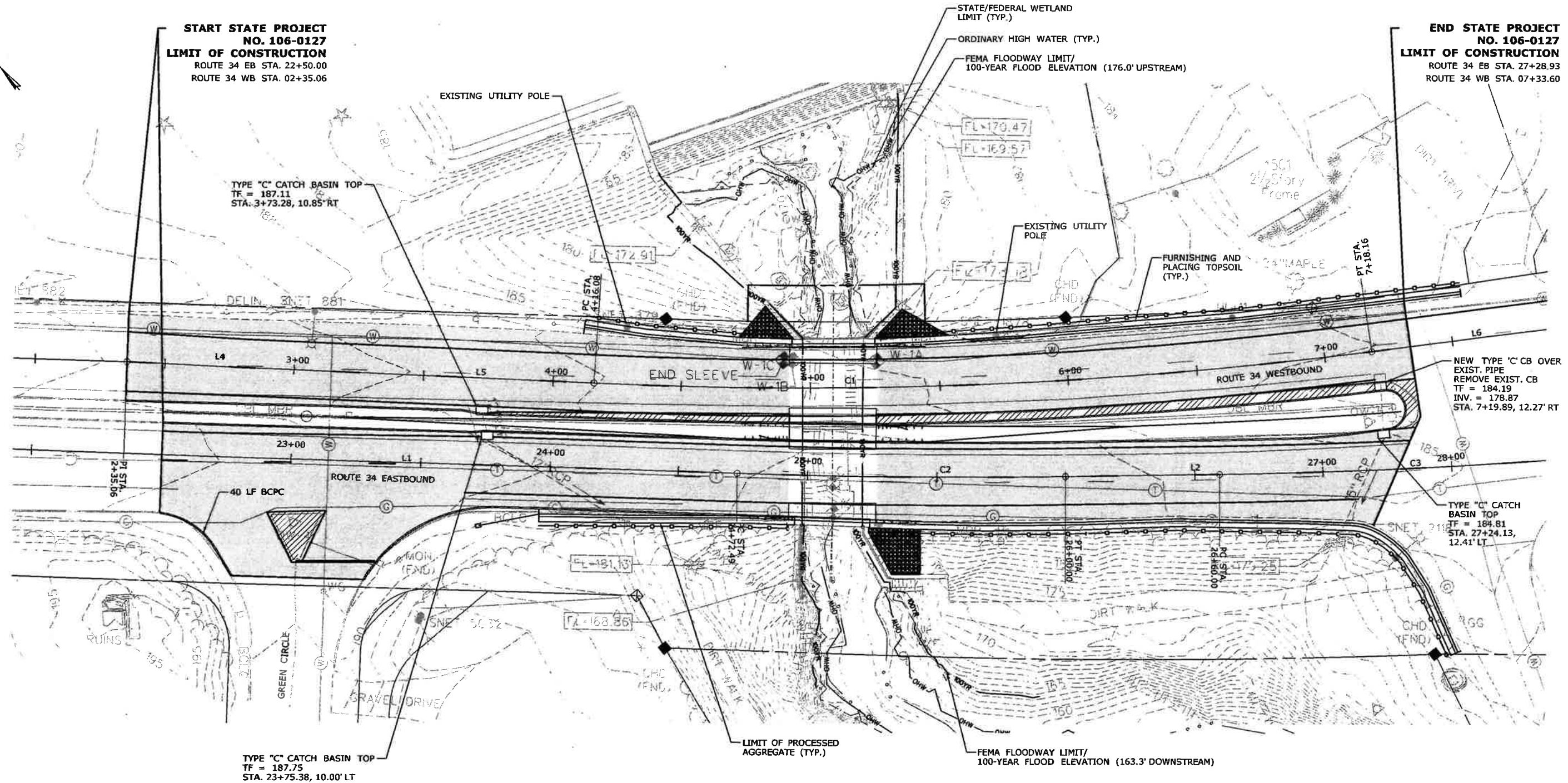
PLAN DATE: DECEMBER 10, 2018

DESIGNER/DRAFTER: JJF	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	CHECKED BY: AML	SIGNATURE/ BLOCK:	<p>REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER</p>	TOWN: ORANGE	PROJECT NO. 106-127	DRAWING NO. PMT-01														
SCALE AS NOTED		PROJECT TITLE:	DRAWING TITLE: TITLE SHEET	SHEET NO.																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">REV.</th> <th style="width: 70%;">DATE</th> <th style="width: 20%;">REVISION DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV.	DATE	REVISION DESCRIPTION																THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	SHEET NO.	Plotted Date: 12/10/2018 Filename: ...PMT-01 TITLE SHEET.dgn
REV.	DATE	REVISION DESCRIPTION																			



**START STATE PROJECT
NO. 106-0127
LIMIT OF CONSTRUCTION**
ROUTE 34 EB STA. 22+50.00
ROUTE 34 WB STA. 02+35.06

**END STATE PROJECT
NO. 106-0127
LIMIT OF CONSTRUCTION**
ROUTE 34 EB STA. 27+28.93
ROUTE 34 WB STA. 07+33.60



HIGHWAY PLAN
SCALE: 1" = 20'-0"

NOTES

- ALL WORK AND MATERIALS ASSOCIATED WITH CONNECTING NEW DRAINAGE STRUCTURES TO EXISTING PIPE SHALL BE PAID FOR UNDER THE ITEM "TYPE C" CATCH BASIN".
- THE BITUMINOUS CONCRETE MEDIAN SHALL BE PAID FOR UNDER THE ITEM "BITUMINOUS CONCRETE SIDEWALK".

LEGEND

- FINE MILL ROAD CONSTRUCTION
- FULL DEPTH ROAD CONSTRUCTION

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018	DESIGNER/DRAFTER: JJF	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127
				CHECKED BY: AML		SCALE AS NOTED	DRAWING TITLE: ROADWAY PLAN	DRAWING NO. PMT-02	SHEET NO.



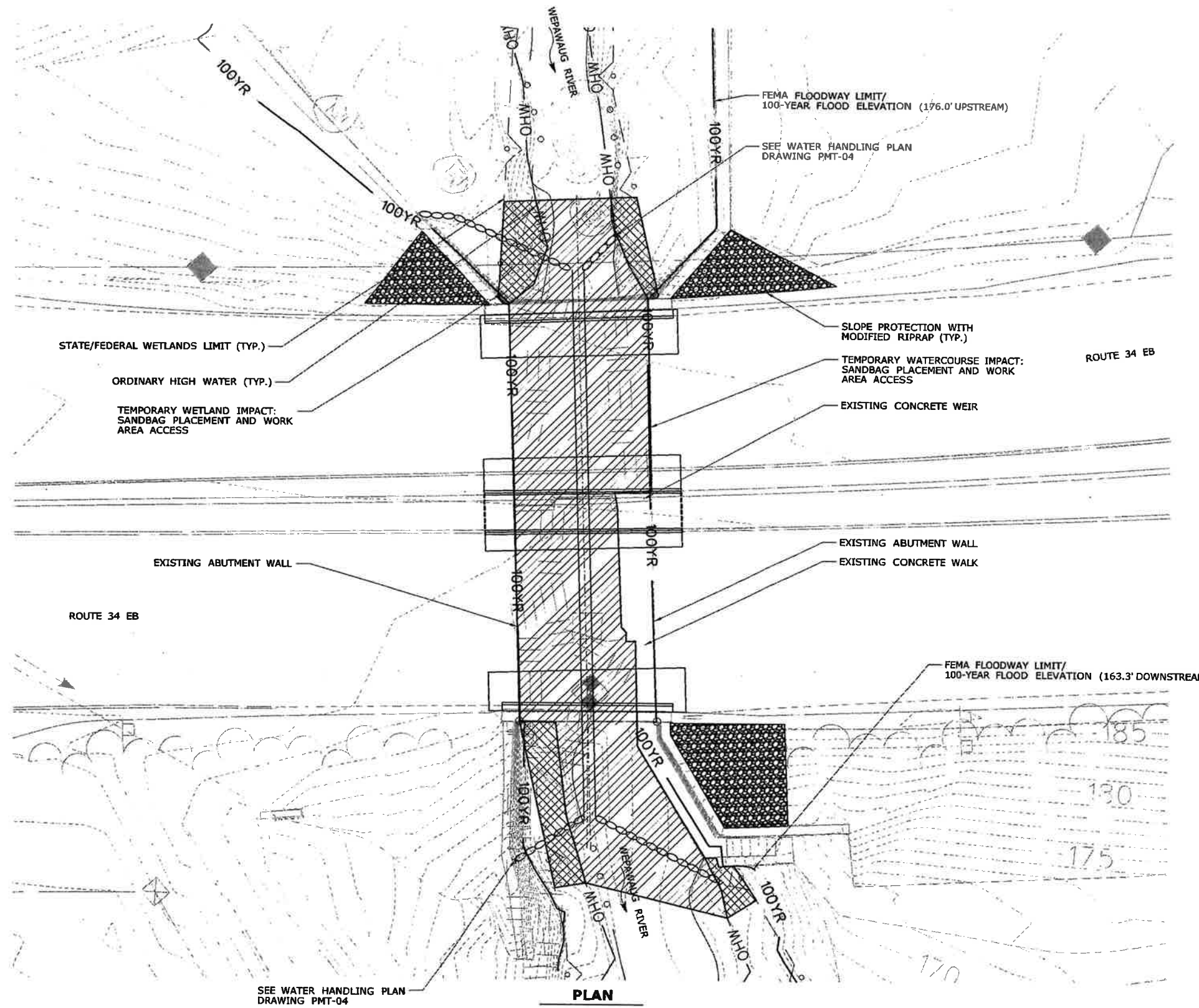
WETLAND/WATERCOURSE SITE AREA IMPACT				
	WETLAND SITE NO.	WETLAND IMPACTS	WATERWAY IMPACTS	TOTAL
TEMPORARY IMPACTS*	1	370 SF (0.008 AC.)	2380 SF (0.055 AC.)	2750 SF (0.063 AC.)

*TEMPORARY IMPACTS INCLUDE INSTALLATION OF SANDBAGS AND WORK AREA NEEDED FOR STRUCTURAL REPAIRS. NO CHANNEL WORK IS PROPOSED.

100-YEAR FLOODPLAIN AREA IMPACTS, CUT, & FILL INFO			
AREA IMPACTS		VOLUME IMPACTS	
TEMPORARY IMPACT AREA	PERMANENT IMPACT AREA	EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
2885 S.F.	N/A	N/A	N/A

LEGEND

- TEMPORARY WETLAND IMPACT AREA
- TEMPORARY WATERCOURSE IMPACT AREA
- 100YR FEMA FLOODWAY LIMIT/ 100-YEAR FLOOD ELEVATION
- STATE/FEDERAL WETLANDS LIMIT
- OHW ORDINARY HIGH WATER



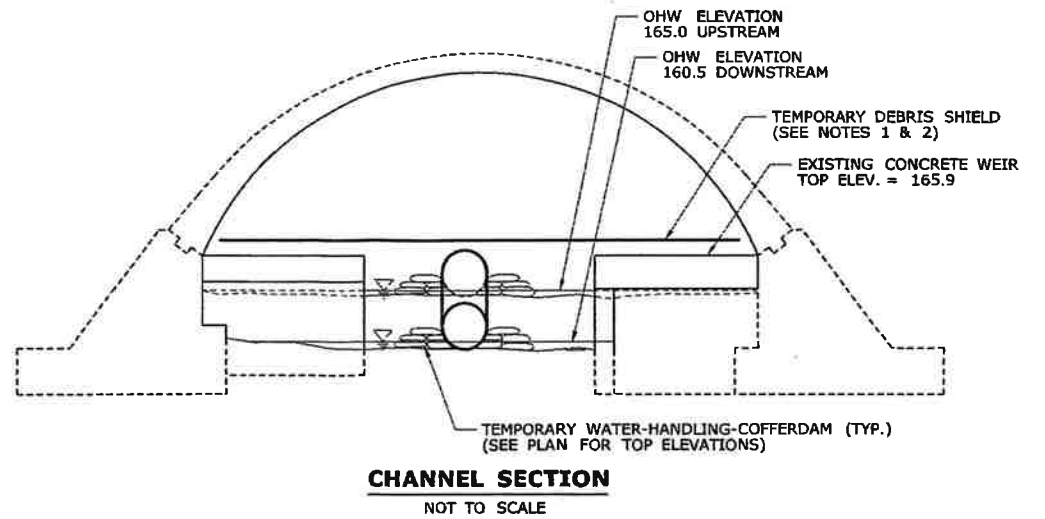
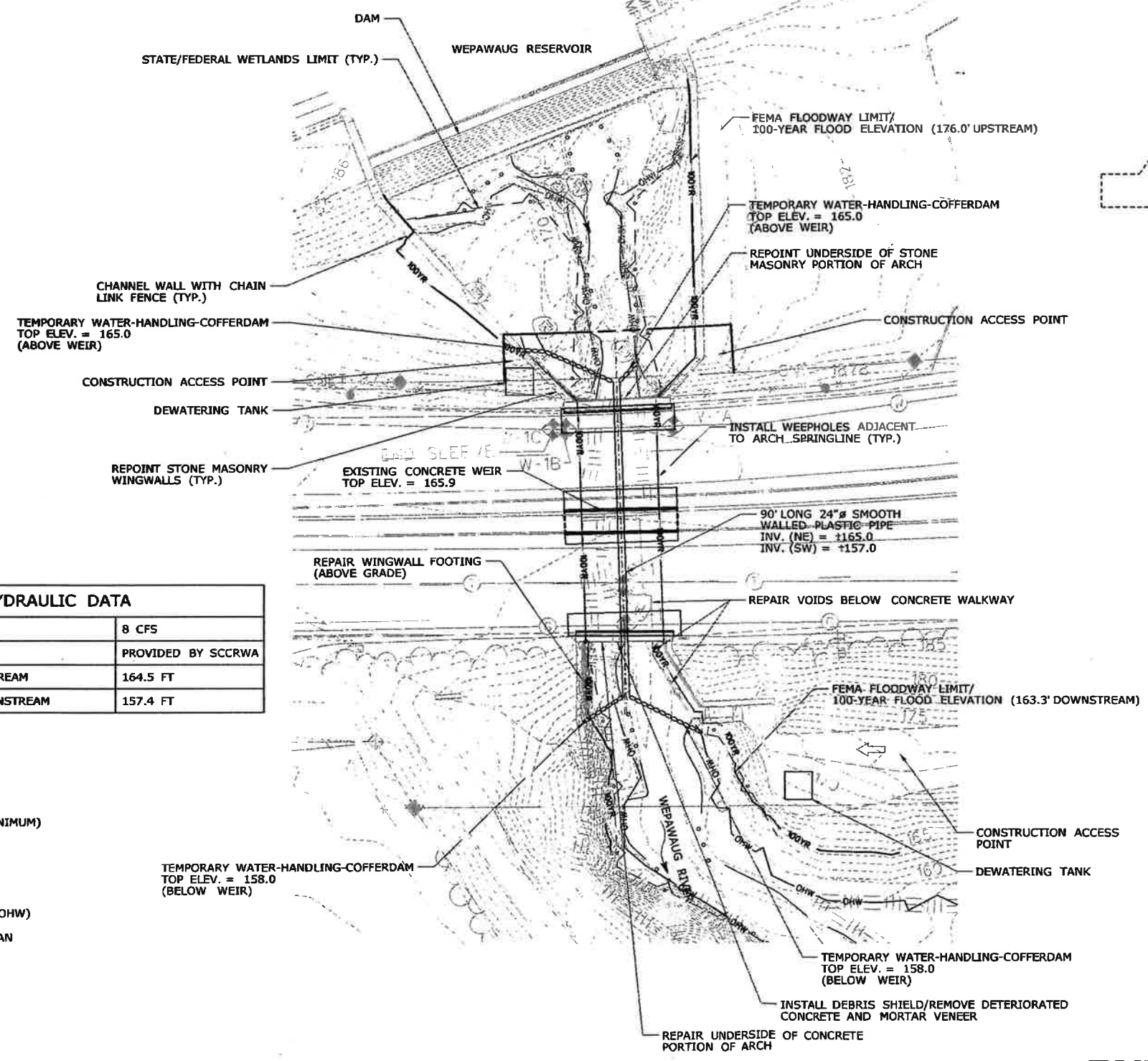
SEE WATER HANDLING PLAN DRAWING PMT-04

PLAN
SCALE: 1" = 10'-0"

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

DESIGNER/DRAFTER: JJF CHECKED BY: AML SCALE AS NOTED		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: \\PMT-03 WETLAND IMPACT PLAN.dgn		SIGNATURE/BLOCK: 		PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER		TOWN: ORANGE		PROJECT NO.: 106-127 DRAWING NO.: PMT-03 SHEET NO.:	
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED. Plotted Date: 12/10/2018							



TEMPORARY HYDRAULIC DATA	
TEMPORARY DESIGN DISCHARGE	8 CFS
TEMPORARY DESIGN FREQUENCY	PROVIDED BY SCCRWA
TEMPORARY WATER SURFACE EL. UPSTREAM	164.5 FT
TEMPORARY WATER SURFACE EL. DOWNSTREAM	157.4 FT

OPENNESS RATIO:
 OR = OPEN AREA / CULVERT LENGTH
 OR = 163 SF / 71 FT = 2.3 FT
 2.3 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):
 BFW = 16 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 19.2 FT
 19.2 FT < 24 FT EXISTING CLEAR SPAN

PLAN
 SCALE: 1" = 20'-0"

TEMPORARY FLOW DIVERSION PIPE NOTES:

1. PIPE TO BE SMOOTH WALLED INTERIOR AND FLEXIBLE TO NAVIGATE THE FLOW LINE THROUGH THE WORK AREA.
2. BRACING WILL BE REQUIRED AT VARIOUS POINTS ALONG THE PIPE FOR STABILIZATION THROUGH THE WORK AREA.

TEMPORARY DEBRIS SHIELD NOTES:

1. TEMPORARY DEBRIS SHIELD TO BE REMOVED UPON COMPLETION OF WORK EACH DAY, AND/OR PRIOR TO ANY FORECASTED SEVERE STORM EVENT.
2. THE DEBRIS SHIELD SHALL PROTECT THE ENTIRE STREAM BED AREA BENEATH THE STRUCTURE AND SHALL BE AS SPECIFIED IN ITEM NO. 0602971A - DEBRIS SHIELD.

SUGGESTED SEQUENCE OF CONSTRUCTION:

REPAIR TO THE UNDERSIDE OF ARCH AND SUBSTRUCTURE CAN BE PERFORMED FROM BELOW WHILE MAINTAINING EXISTING TRAFFIC PATTERNS.

DURING REMOVAL OF EXISTING DETERIORATED CONCRETE AND MORTAR VENEER FROM THE ARCH UNDERSIDE, THE CONTRACTOR SHALL TAKE ADEQUATE MEASURES TO PREVENT ANY DEBRIS FROM ENTERING INTO THE WATERCOURSE. THE CONTRACTOR SHALL DESIGN AND INSTALL A TEMPORARY DEBRIS SHIELD. THE COST OF WHICH SHALL BE INCLUDED IN THE ITEM "DEBRIS SHIELD".

1. INSTALL TEMPORARY WATER-HANDLING-COFFERDAM AND INSTALL TEMPORARY FLOW DIVERSION PIPE AS SHOWN ON THE PLAN.
2. DIVERT WATER FROM WORK AREA BEHIND TEMPORARY WATER-HANDLING-COFFERDAM AS REQUIRED FOR REPAIRS.
3. REPAIR SUBSTRUCTURE TO THE SATISFACTION OF THE ENGINEER.
4. INSTALL TEMPORARY DEBRIS SHIELD BELOW EXISTING SPRINGLINE OF ARCH.
5. REMOVE DETERIORATED CONCRETE ALONG UNDERSIDE OF THE CONCRETE PORTION OF THE ARCH AND THE MORTAR VENEER ALONG THE UNDERSIDE OF THE STONE MASONRY PORTION OF THE ARCH.
6. REPAIR THE UNDERSIDE OF THE ARCH TO THE SATISFACTION OF THE ENGINEER.
7. REMOVE TEMPORARY DEBRIS SHIELD AND TEMPORARY WATER-HANDLING-COFFERDAM.

GENERAL NOTES:

1. IN CONJUNCTION WITH THE ENGINEER, COORDINATE WITH THE SOUTH CENTRAL CONNECTICUT REGIONAL WATER AUTHORITY (SCCRWA) TO RESTRICT FLOW FROM THE WEPAWAUG RESERVOIR DAM.
2. TEMPORARY WATER-HANDLING-COFFERDAM FOR CONTROL OF THE FLOW THROUGH THE BRIDGE SITE SHALL BE AS SHOWN ON THE PLANS OR AS REQUIRED BASED ON FLOWS RESULTING FROM COORDINATION WITH SCCRWA. PAYMENT SHALL BE AS SPECIFIED IN ITEM NO. 0204151A - HANDLING WATER.
3. ACCESS TO REPAIR THE SOUTHWEST WINGWALL FOOTING SHALL BE MADE AT THE CONSTRUCTION ACCESS POINT AT THE SOUTHEAST CORNER.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

DESIGNER/DRAFTER: JJF	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127
CHECKED BY: AML		SCALE AS NOTED		DRAWING TITLE: WATER HANDLING PLAN	DRAWING NO. PMT-04
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018	Filename: ...PMT-04 WATER HANDLING PLAN.dgn	

Attachment F: ACOE Category 1 Certification Form

General Permit for Water Resource Construction Activities

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127
Rehabilitation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

List of Attachments

- Appendix E: Category 1 Self-Verification Notification Form will be filed with the US Army Corp of Engineers



**US Army Corps
of Engineers**
New England District

Appendix E: Self-Verification Notification Form

This form is required for all **non-tidal projects in Connecticut**, but **not** required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. **Before** work commences, complete **all** fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751
or cenae-r@usace.army.mil

and

CT DEEP
Inland Water Resources Division
79 Elm Street
Hartford, CT 06106-5127

State or local Permit Number: _____
Date of State or local Permit: _____
State/local Project Manager: _____

Permittee: Connecticut Department of Transportation
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06111
Phone(s) and Email: 860-594-2931 kimberly.lesay@ct.gov

Contractor: TBD
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: Close, Jensen & Miller, P.C.
Address, City, State & Zip: 1137 Silas Deane Highway, Wethersfield, CT 06109
Phone(s) and Email: 860-563-9375 mlevesque@cjmpc.com

Wetland/Soil Scientist Consultant: GZA
Address, City, State & Zip: 1350 Main Street, Suite 1400, Springfield MA 01103
Phone(s) and Email: 413-726-2100 paul.davis@gza.com

Project Location (provide detailed description & locus map): Bridge No. 00948 (See attachment)
Address, City, State & Zip: Route 34 over Wepawaug River, Orange, CT 06477
Latitude/Longitude Coordinates: 41 18' 13.68"N/73 01' 48.36"W
Waterway Name: Wepawaug River

Project Purpose (include all aspects of the project including those not within Corps jurisdiction):
Rehabilitation of Bridge No. 00948 single span hybrid arch structure due to the deteriorated condition of the masonry arch veneer.

Work Description: _____
Bridge No. 00948 consists of constructing cast-in-place concrete slab sections on the roadway above the arch. The mortar veneer will be removed and the masonry joints will be re-pointed as needed. Weep holes will be installed and the substructure and wingwalls will be repaired as required.

Work will be done under the following GP(s) (check all that have associated impacts):

 GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 5 - Boat ramps/marine railways

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 **GP. 6 - Utility line activities (include calculations for each single & complete crossing
– attach additional sheet if necessary)**

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 9 - Shoreline and bank stabilization projects

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 10 - Aquatic habitat restoration, establishment and enhancement activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 12 - Oil Spill and Hazardous material cleanup

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 13 - Cleanup of hazardous and toxic waste

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 14 - Scientific measurements devices

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 15 - Survey activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

 GP. 17 - New/expanded developments & recreational facilities

Area of total wetland impacts: temporary _____ SF permanent _____ SF

Area of total waterway impacts: temporary _____ SF permanent _____ SF

GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)

Area of total wetland impacts: temporary _____ SF permanent _____ SF
Area of total waterway impacts: temporary _____ SF permanent _____ SF

GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)

Area of total wetland impacts: temporary 370 SF permanent 0 SF
Area of total waterway impacts: temporary 2,380 SF permanent 0 SF

 GP. 21 - Temporary fill not associated with any other GP activities

Area of total wetland impacts: temporary _____ SF permanent _____ SF
Area of total waterway impacts: temporary _____ SF permanent _____ SF

Does your project include any secondary effects? Yes _____ No
(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: _____

Proposed Work Dates: Start: Spring 2019 Finish: Fall 2019

Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.

Thomas J. Mazian
Signature of Permittee

- 12-21-2018
Date

Attachment H: Other Information

General Permit for Water Resource Construction Activities

Applicant: State of Connecticut, Department of Transportation
Project No. 106-127 (Constr.), 106-127 (P.E.)
Preservation of Bridge No. 00948 in Orange
Route 34 over Wepawaug River

List of Attachments

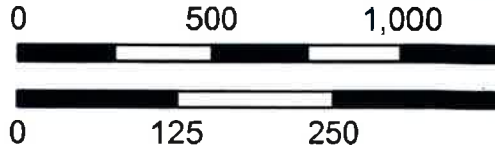
- Flood Insurance Rate Map Panel 0417 of 0635, New Haven County.
Map Number 09009C0417J
Revised: May 16, 2017
- Natural Diversity Data Base Area map of Orange dated December 2017.
- Permit Plans signed by DEEP Fisheries Division August 1, 2017.
- Flood Management General Certification, issued 12-05-18
- Site Photos

SCALE

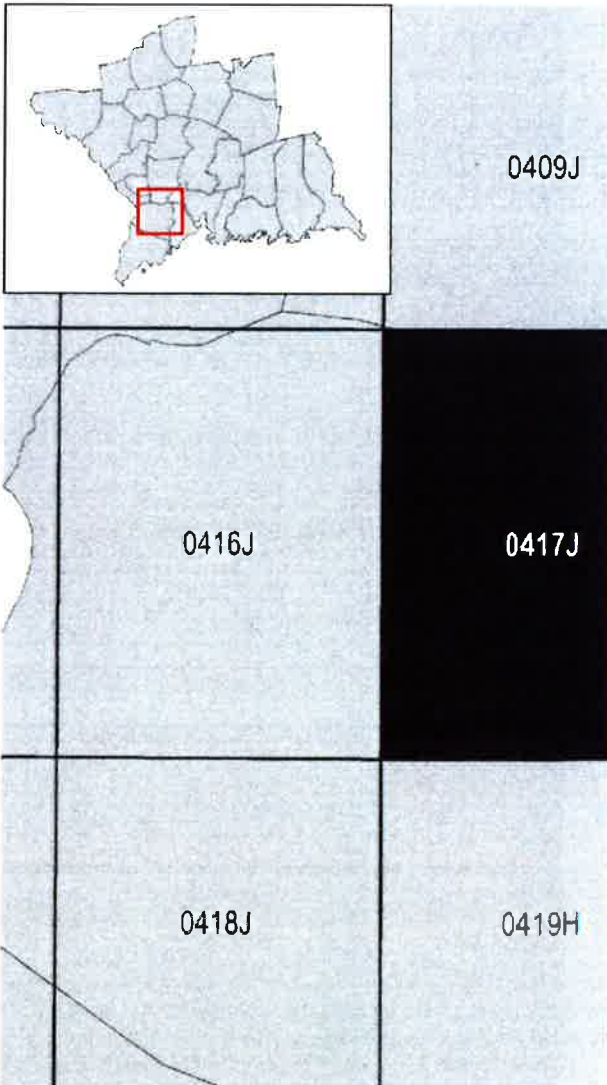


Map Projection:
State Plane Connecticut FIPS 0600 Feet; North
Western Hemisphere; Vertical Datum: NAVD 83

1 inch = 500 feet



PANEL LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP

4572001N
41° 16' 52.5"
10° 00'

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

Haven County, CT
MUNICIPAL JURISDICTIONS:
0417 of 0635



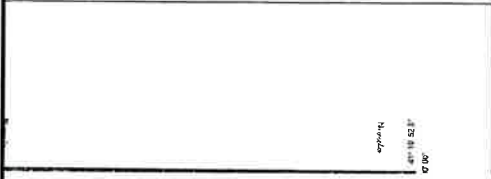
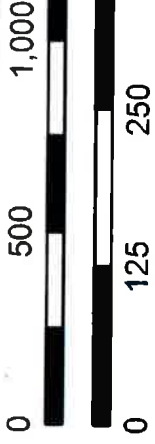
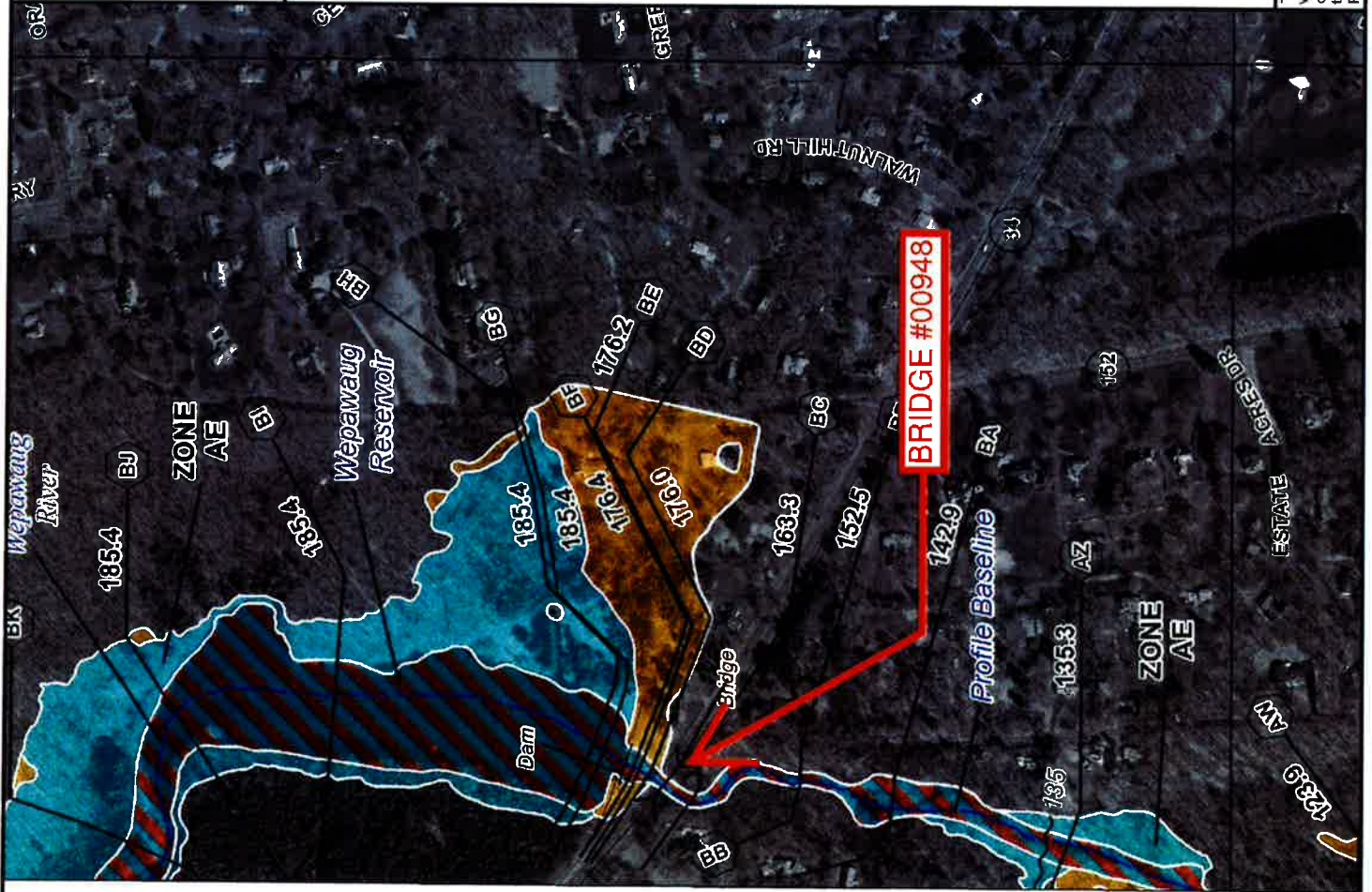
GRID REFERENCE:

CITY	NUMBER	PANEL	SUFFIX
TOWN OF	090087	0417	J
RIDGE, TOWN OF	090153	0417	J

VERSION NUMBER
2.3.3.2

MAP NUMBER
09009C0417J
MAP REVISED
May 16, 2017

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



NATIONAL FLOOD INSURANCE PROGRAM
 FEDERAL EMERGENCY MANAGEMENT AGENCY
 HEAVEN COUNTY, CT
 WEPAWAUG
 0617 or 0635

DATE: 05/16/2017
 CITY: WEPAWAUG
 COUNTY: HEAVEN
 STATE: CT

VERSION NUMBER: 2332
 MAP NUMBER: 0909094171
 MAP REVISED: May 16, 2017

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

670000 FT

LOADING EFFECTS FROM

Current Flood Hazard
 For community
 To determine
 Flood Insurance
 Base map information

NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP



NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP
 Haven County, CT
 06417 or 06635

DATE
 CITY
 TOWN OR
 AREA, TOWNSHIP

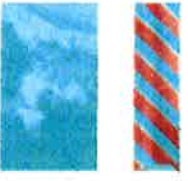
NUMBER, PANEL, SURFACE
 05067 0417 1

PROJECT 0417

VERSION NUMBER
 2.3.3.2
 MAP NUMBER
 0900900437J
 MAP REVISED
 May '06, 2017

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Without Base Flood Elevation (BFE)
 Zone A, V, A99
 With BFE or Depth Zone AE, AO, AH, VE, AR
 Regulatory Floodway



0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X



Future Conditions 1% Annual Chance Flood Hazard Zone X
 Area with Reduced Flood Risk due to Levee
 See Notes. Zone X



Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X
 Area of Undetermined Flood Hazard Zone D



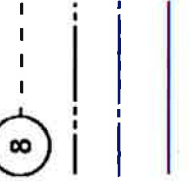
Channel, Culvert, or Storm Sewer
 Levee, Dike, or Floodwall



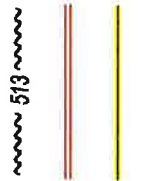
Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)



Coastal Transect
 Coastal Transect Baseline
 Profile Baseline
 Hydrographic Feature



Base Flood Elevation Line (BFE)
 Limit of Study
 Jurisdiction Boundary



SPECIAL FLOOD HAZARD AREAS

OTHER AREAS OF FLOOD HAZARD

OTHER AREAS

GENERAL STRUCTURES

OTHER FEATURES

Natural Diversity Data Base Areas ORANGE, CT

December 2017

-  State and Federal Listed Species & Significant Natural Communities
-  Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Significant Natural Communities. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a number of data sources. Exact locations of species have been buffered to produce the general locations. Exact locations of species and communities occur somewhere in the shaded areas, not necessarily in the center. A new mapping format is being employed that more accurately models important riparian and aquatic areas and eliminates the need for the upstream/downstream searches required in previous versions.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a shaded area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

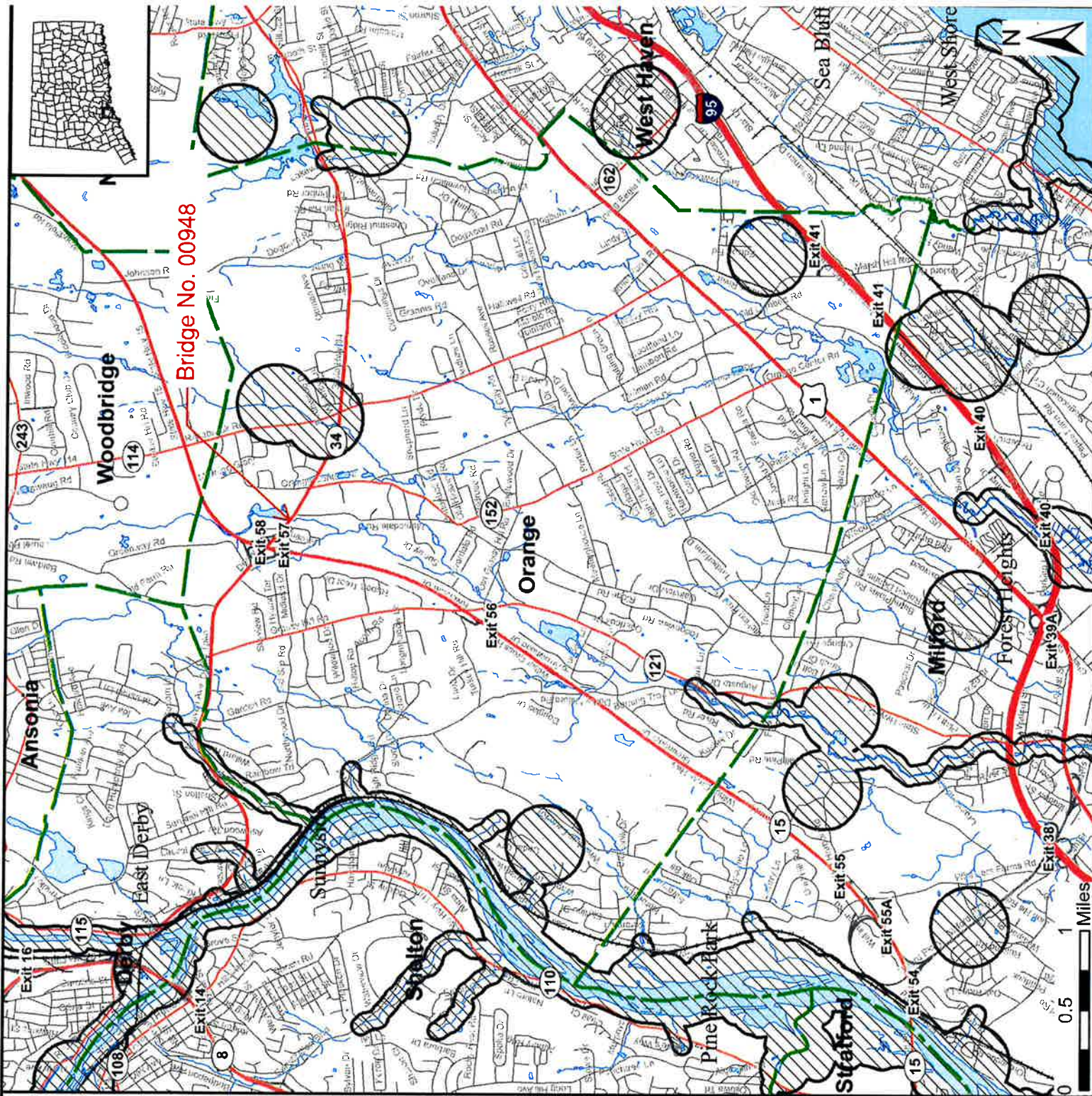
www.ct.gov/deep/hddbrequest

Use the CTECO Interactive Map Viewers at www.cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

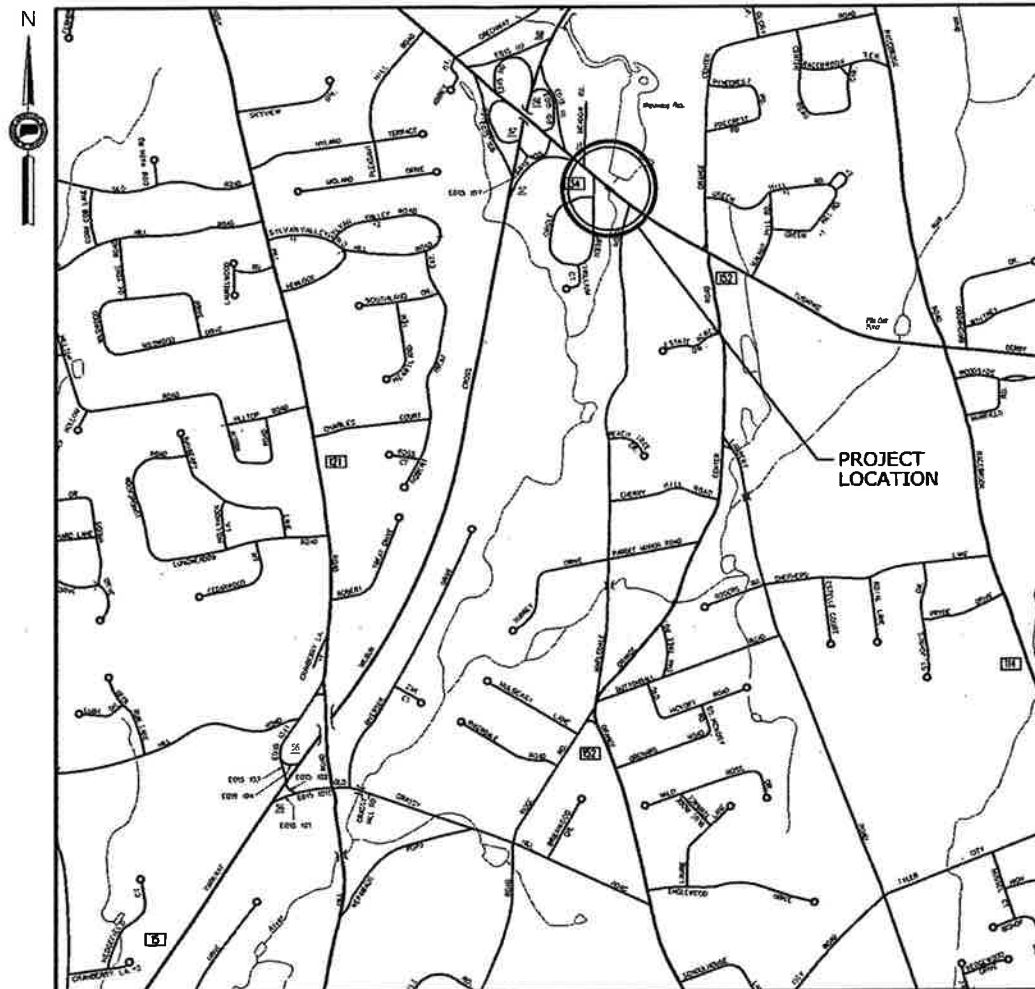
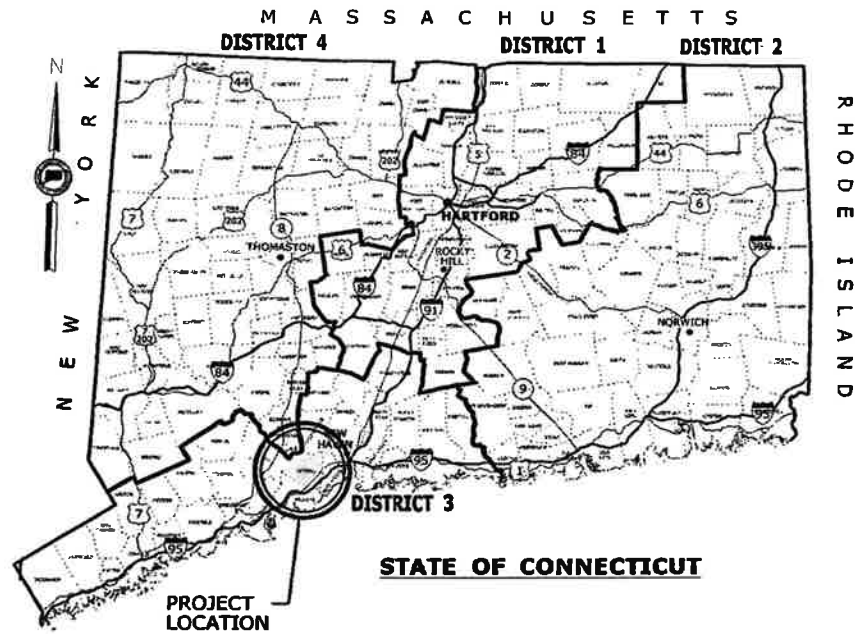
QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St., Hartford CT 06106
Phone (860) 424-3011



Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division



ENVIRONMENTAL PERMIT PLANS PROJECT NO. 106-127 REHABILITATION OF BRIDGE 00948 IN THE TOWN OF ORANGE



LOCATION PLAN

1" = 1000'

GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1927 VERTICAL DATUM BASED ON NGVD OF 1929.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD SPECIFICATIONS FOR ROADS, BRIDGE, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	ROADWAY PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	WATER HANDLING PLAN

DESIGNED BY:

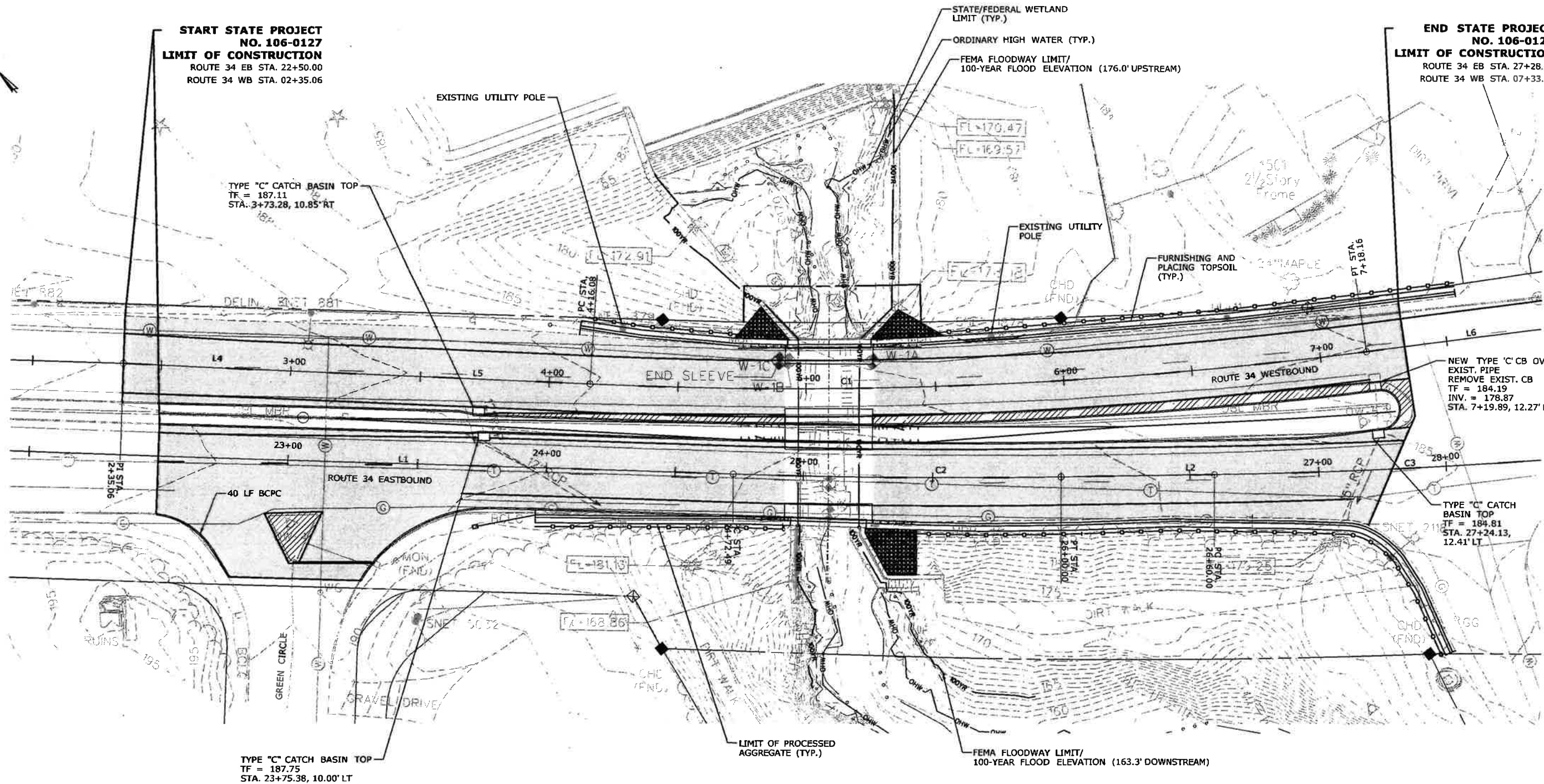
STANTEC CONSULTING SERVICES INC.
35 CHURCH STREET, SUITE 601
NEW HAVEN, CT 06510

PLAN DATE: DECEMBER 10, 2018

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018	DESIGNER/DRAFTER: JJF	CHECKED BY: AML	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:
				SCALE AS NOTED		PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	
				TOWN: ORANGE		DRAWING TITLE: TITLE SHEET	
						PROJECT NO. 106-127	DRAWING NO. PMT-01
						SHEET NO.	

**START STATE PROJECT
NO. 106-0127
LIMIT OF CONSTRUCTION**
ROUTE 34 EB STA. 22+50.00
ROUTE 34 WB STA. 02+35.06

**END STATE PROJECT
NO. 106-0127
LIMIT OF CONSTRUCTION**
ROUTE 34 EB STA. 27+28.93
ROUTE 34 WB STA. 07+33.60



HIGHWAY PLAN
SCALE: 1" = 20'-0"

NOTES

1. ALL WORK AND MATERIALS ASSOCIATED WITH CONNECTING NEW DRAINAGE STRUCTURES TO EXISTING PIPE SHALL BE PAID FOR UNDER THE ITEM "TYPE C" CATCH BASIN".
2. THE BITUMINOUS CONCRETE MEDIAN SHALL BE PAID FOR UNDER THE ITEM "BITUMINOUS CONCRETE SIDEWALK".

LEGEND

- FINE MILL ROAD CONSTRUCTION
- FULL DEPTH ROAD CONSTRUCTION

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 12/10/2018	DESIGNER/DRAFTER: JJF	CHECKED BY: AML	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:
				SCALE AS NOTED	Filename: ...PMT-02 ROADWAY PLAN.dgn	 REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	PROJECT TITLE:
				TOWN:	ORANGE	DRAWING TITLE:	ROADWAY PLAN
				PROJECT NO.:	106-127	DRAWING NO.:	PMT-02
				SHEET NO.:			



WETLAND/WATERCOURSE SITE AREA IMPACT				
	WETLAND SITE NO.	WETLAND IMPACTS	WATERWAY IMPACTS	TOTAL
TEMPORARY IMPACTS*	1	370 SF (0.008 AC.)	2380 SF (0.055 AC.)	2750 SF (0.063 AC.)

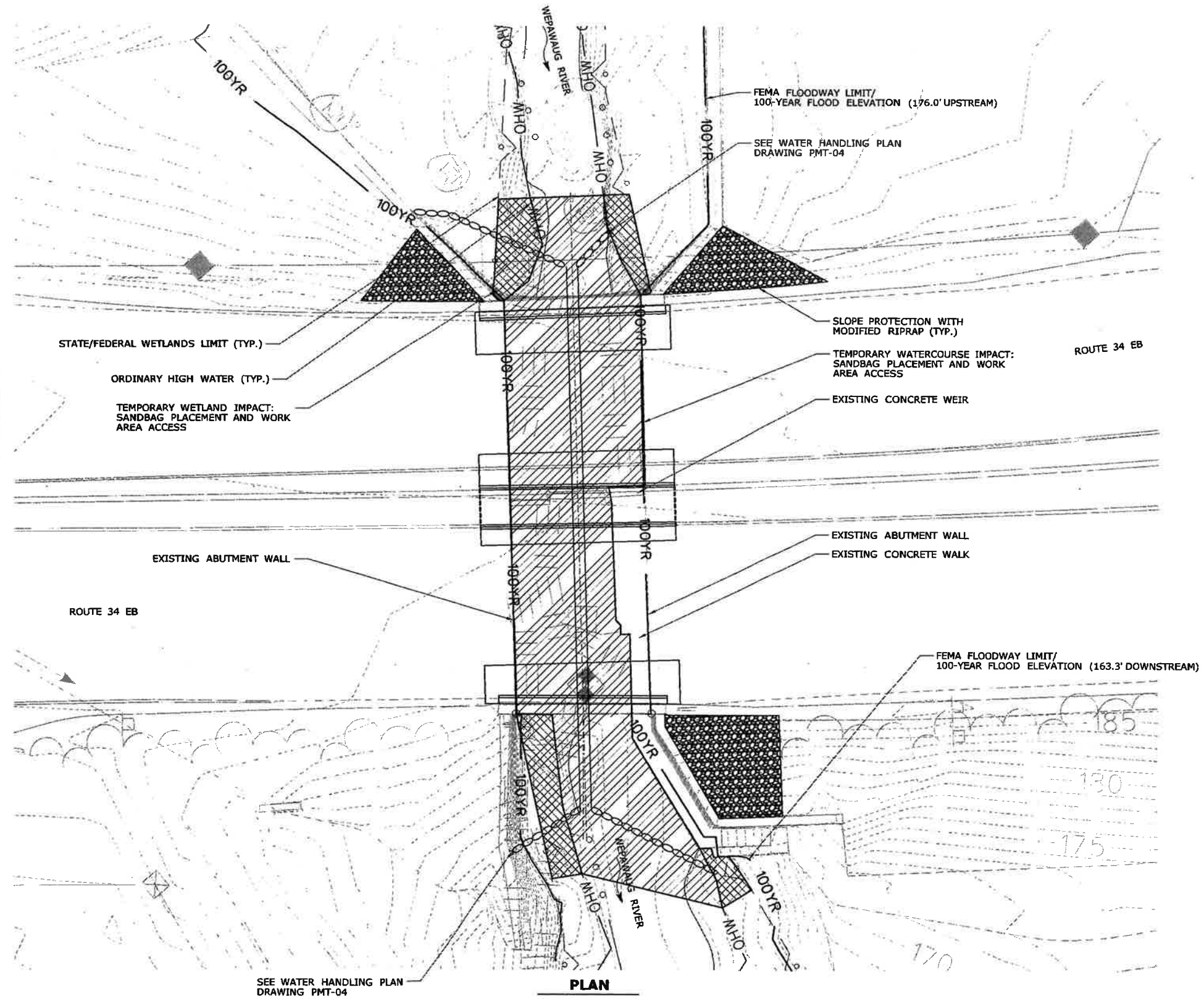
*TEMPORARY IMPACTS INCLUDE INSTALLATION OF SANDBAGS AND WORK AREA NEEDED FOR STRUCTURAL REPAIRS. NO CHANNEL WORK IS PROPOSED.

100-YEAR FLOODPLAIN AREA IMPACTS, CUT, & FILL INFO

AREA IMPACTS		VOLUME IMPACTS	
TEMPORARY IMPACT AREA	PERMANENT IMPACT AREA	EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
2885 S.F.	N/A	N/A	N/A

LEGEND

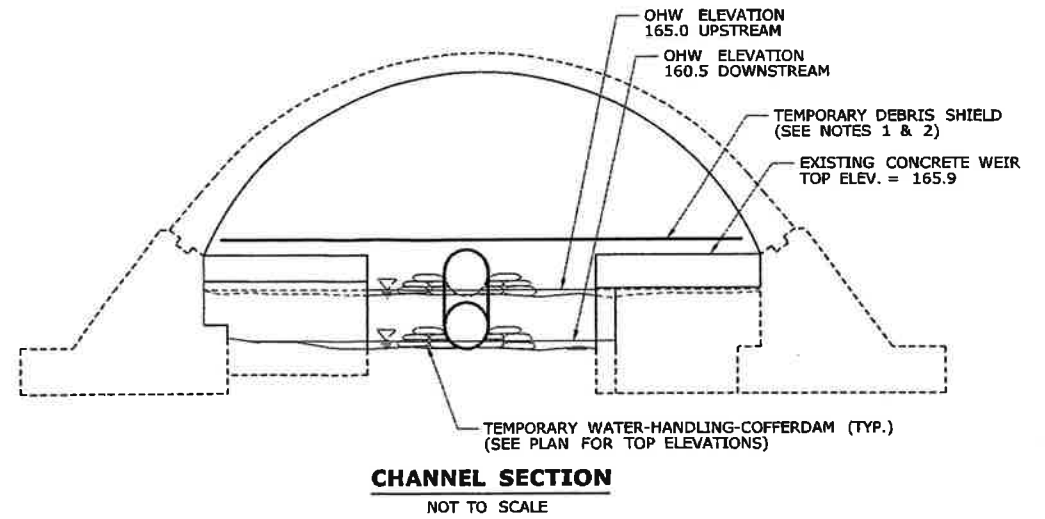
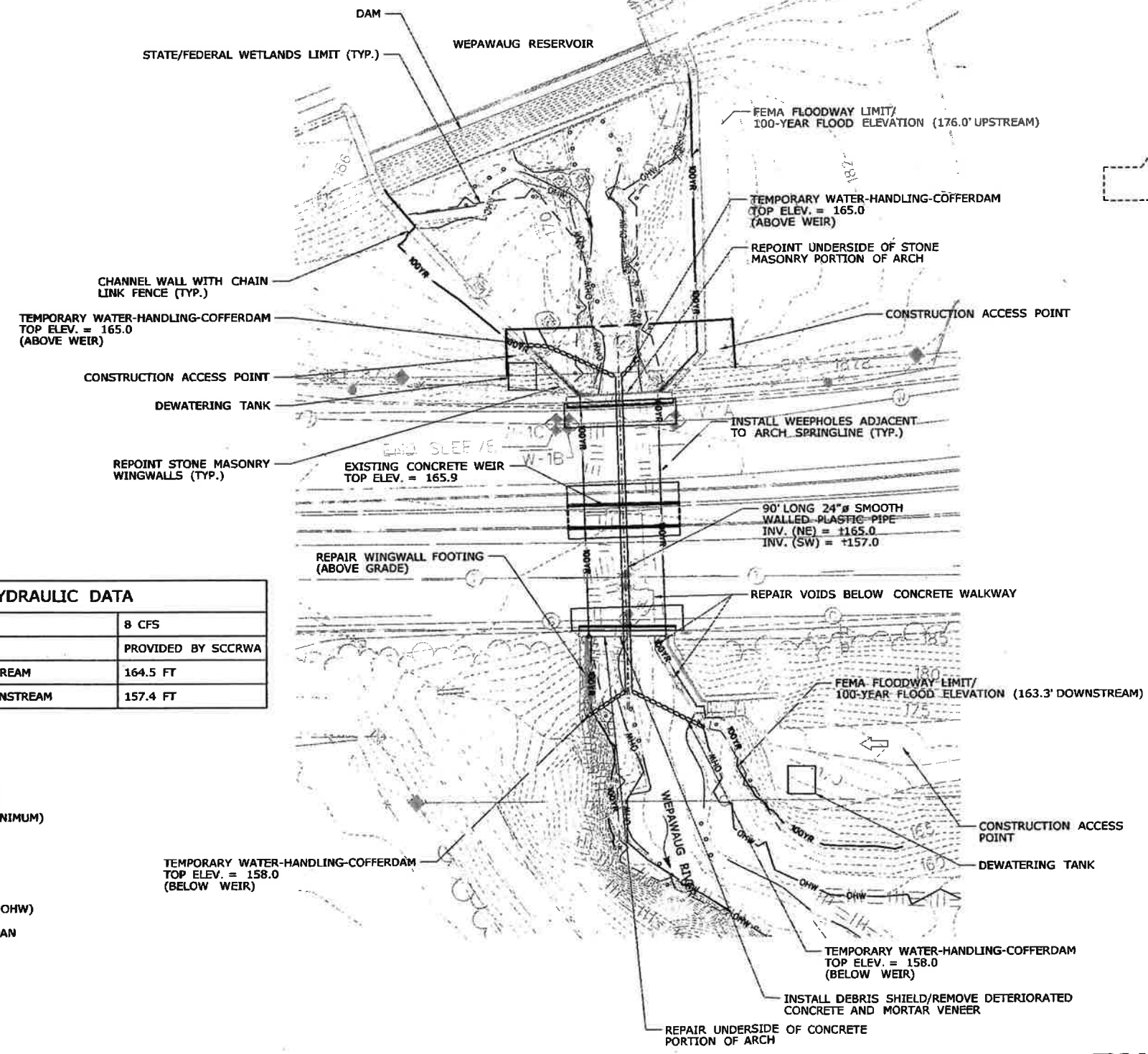
- TEMPORARY WETLAND IMPACT AREA
- TEMPORARY WATERCOURSE IMPACT AREA
- FEMA FLOODWAY LIMIT/ 100-YEAR FLOOD ELEVATION
- STATE/FEDERAL WETLANDS LIMIT
- ORDINARY HIGH WATER



ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 10, 2018

REV. DATE REVISION DESCRIPTION SHEET NO.	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: JJF	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: 	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127
		CHECKED BY: AML			SCALE AS NOTED	DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	DRAWING NO. PMT-03



TEMPORARY HYDRAULIC DATA	
TEMPORARY DESIGN DISCHARGE	8 CFS
TEMPORARY DESIGN FREQUENCY	PROVIDED BY SCCRWA
TEMPORARY WATER SURFACE EL. UPSTREAM	164.5 FT
TEMPORARY WATER SURFACE EL. DOWNSTREAM	157.4 FT

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 BFW = 16 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 19.2 FT
 19.2 FT < 24 FT EXISTING CLEAR SPAN

TEMPORARY WATER-HANDLING-COFFERDAM
 TOP ELEV. = 158.0
 (BELOW WEIR)

PLAN
 SCALE: 1" = 20'-0"

TEMPORARY FLOW DIVERSION PIPE NOTES:

1. PIPE TO BE SMOOTH WALLED INTERIOR AND FLEXIBLE TO NAVIGATE THE FLOW LINE THROUGH THE WORK AREA.
2. BRACING WILL BE REQUIRED AT VARIOUS POINTS ALONG THE PIPE FOR STABILIZATION THROUGH THE WORK AREA.

TEMPORARY DEBRIS SHIELD NOTES:

1. TEMPORARY DEBRIS SHIELD TO BE REMOVED UPON COMPLETION OF WORK EACH DAY, AND/OR PRIOR TO ANY FORECASTED SEVERE STORM EVENT.
2. THE DEBRIS SHIELD SHALL PROTECT THE ENTIRE STREAM BED AREA BENEATH THE STRUCTURE AND SHALL BE AS SPECIFIED IN ITEM NO. 0602971A - DEBRIS SHIELD.

SUGGESTED SEQUENCE OF CONSTRUCTION:

REPAIR TO THE UNDERSIDE OF ARCH AND SUBSTRUCTURE CAN BE PERFORMED FROM BELOW WHILE MAINTAINING EXISTING TRAFFIC PATTERNS.

DURING REMOVAL OF EXISTING DETERIORATED CONCRETE AND MORTAR VENEER FROM THE ARCH UNDERSIDE, THE CONTRACTOR SHALL TAKE ADEQUATE MEASURES TO PREVENT ANY DEBRIS FROM ENTERING INTO THE WATERCOURSE. THE CONTRACTOR SHALL DESIGN AND INSTALL A TEMPORARY DEBRIS SHIELD. THE COST OF WHICH SHALL BE INCLUDED IN THE ITEM "DEBRIS SHIELD".

1. INSTALL TEMPORARY WATER-HANDLING-COFFERDAM AND INSTALL TEMPORARY FLOW DIVERSION PIPE AS SHOWN ON THE PLAN.
2. DIVERT WATER FROM WORK AREA BEHIND TEMPORARY WATER-HANDLING-COFFERDAM AS REQUIRED FOR REPAIRS.
3. REPAIR SUBSTRUCTURE TO THE SATISFACTION OF THE ENGINEER.
4. INSTALL TEMPORARY DEBRIS SHIELD BELOW EXISTING SPRINGLINE OF ARCH.
5. REMOVE DETERIORATED CONCRETE ALONG UNDERSIDE OF THE CONCRETE PORTION OF THE ARCH AND THE MORTAR VENEER ALONG THE UNDERSIDE OF THE STONE MASONRY PORTION OF THE ARCH.
6. REPAIR THE UNDERSIDE OF THE ARCH TO THE SATISFACTION OF THE ENGINEER.
7. REMOVE TEMPORARY DEBRIS SHIELD AND TEMPORARY WATER-HANDLING-COFFERDAM.

GENERAL NOTES:

1. IN CONJUNCTION WITH THE ENGINEER, COORDINATE WITH THE SOUTH CENTRAL CONNECTICUT REGIONAL WATER AUTHORITY (SCCRWA) TO RESTRICT FLOW FROM THE WEPAWAUG RESERVOIR DAM.
2. TEMPORARY WATER-HANDLING-COFFERDAM FOR CONTROL OF THE FLOW THROUGH THE BRIDGE SITE SHALL BE AS SHOWN ON THE PLANS OR AS REQUIRED BASED ON FLOWS RESULTING FROM COORDINATION WITH SCCRWA. PAYMENT SHALL BE AS SPECIFIED IN ITEM NO. 0204151A - HANDLING WATER.
3. ACCESS TO REPAIR THE SOUTHWEST WINGWALL FOOTING SHALL BE MADE AT THE CONSTRUCTION ACCESS POINT AT THE SOUTHEAST CORNER.

ENVIRONMENTAL PERMIT PLANS


PLAN DATE: DECEMBER 10, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: JJF		PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127
	CHECKED BY: AML				
REV. DATE REVISION DESCRIPTION SHEET NO.	SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 00948, ROUTE 34 OVER WEPAWAUG RIVER	TOWN: ORANGE	PROJECT NO. 106-127

Project No.: 106-127
Description: Bridge No. 00948
Route 34 over Wepawaug River
Town: Orange
Date: October 12, 2018

memorandum

to: Mr. Michael E. Masayda
Trans. Principal Engineer
Hydraulics and Drainage
Bureau of Engineering and Construction

from: Rabih M. Barakat 
Transportation Principal Engineer
Bridge Consultant Design
Bureau of Engineering and Construction

Please review this request for Flood Management General Certification and indicate your concurrence below.

Certification (to be completed by designer)

I have read the Flood Management General Certification and the descriptions for the approved DOT minor activities. This project qualifies for the Flood Management General Certification under:


- Minor Safety Improvements and Streetscape Projects
- Roadway Repaving, Maintenance & Underground Utilities
- Minor Stormwater Drainage Improvements
- Removal of Sediment or Debris from a Floodplain
- Wetland Restoration Creation or Enhancement
- Scour Repairs at Structures; (Must acquire DEEP Fisheries Concurrence to be eligible)
- Guide Rail Installation
- Deck and Superstructure Replacements
- Minor Bridge Repairs and Access
- Fisheries Enhancements
- Surveying and Testing
- Bicycle / Pedestrian, Multi Use Trails and Enhancement Projects

The following required documentation is attached in support of this certification:

- Project description
- Location plan
- Description of Floodplain involvement and how project qualifies for general certification
- 8-1/2" by 11" excerpt copy of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Boundary Map (if applicable)
- Design plans, (dated October 2018) with FEMA floodplain and floodway boundaries plotted, cross sections and profiles, as necessary, that clearly depict the floodplain involvement
- FEMA 100-year flood elevation plotted on elevation view (for structures)

Print Name Aija Zeidenbergs

Title Environmental Coordinator

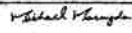
Signature 

Date 10/10/18

Concurrence (to be completed by Hydraulics and Drainage)

Based on the documentation submitted, I hereby concur that the project qualifies for Flood Management General Certification.

If there are any changes to the proposed activities within the floodplain or floodway, the project must be re-submitted for review and approval.

Signature  Michael Masayda, P.E.
2018.10.31 14:29:05-0400

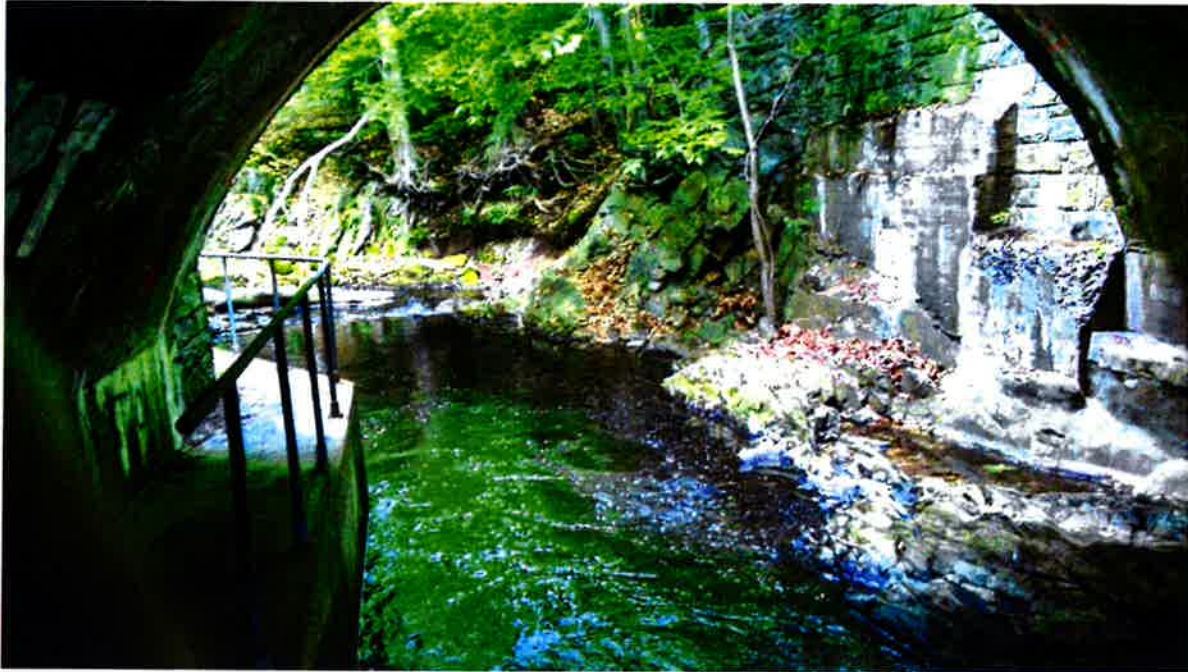
Date: 10-31-18



1. Downstream elevation of Bridge No. 00948



2. Dam upstream of Bridge No. 00948



3. Looking downstream from Bridge No. 00948



4. Looking upstream from Bridge No. 00948



5. Weir under Bridge No. 00948



6. Joint between stone masonry arch and cast-in-place arch extension



7. Typical condition of mortar veneer



8. Typical condition of concrete arch extension near water surface



9. Looking east on top of Bridge No. 00948



10. Looking west on top of Bridge No. 00948

**Construction Contracts - Required Contract Provisions
(State Funded Only Contracts)**

Index

1. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
2. Contractor Work Force Utilization / Specific Equal Employment Opportunity
3. Contract Wage Rates
4. Americans with Disabilities Act of 1990, as Amended
5. Connecticut Statutory Labor Requirements
 - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
 - b. Debarment List - Limitation on Awarding Contracts
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 - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
6. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
7. Executive Orders (State of CT)
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15. Summary of State Ethics Laws
16. Audit and Inspection of Plants, Places of Business and Records
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Index of Exhibits

- EXHIBIT A – Title VI Contractor Assurances (page 13)
- EXHIBIT B – Contractor Work Force Utilization / Equal Employment Opportunity (page 14)
- EXHIBIT C – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 17)
- EXHIBIT D - Campaign Contribution Restriction (page 25)
- EXHIBIT E - State Wage Rates (Attached at the end)

1. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit A, all of which are hereby made a part of this Contract.

2. Contractor Work Force Utilization / Equal Employment Opportunity

- (a) The Contractor shall comply with the Contractor Work Force Utilization / Equal Employment Opportunity requirements attached at Exhibit B and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

3. Contract Wage Rates

The Contractor shall comply with:

The State wage rate requirements indicated in Exhibit E hereof are hereby made part of this Contract.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 816), as may be revised, every Contractor or subcontractor performing project work on a federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

4. Americans with Disabilities Act of 1990, as Amended

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

5. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

6. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

7. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

8. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

- i. "Commission" means the Commission on Human Rights and Opportunities;
- ii. "Contract" and "contract" include any extension or modification of the Contract or contract;
- iii. "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- iv. "gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.

- v. "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- vi. "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;
- vii. "marital status" means being single, married as recognized by the State of Connecticut, widowed, separated or divorced;
- viii. "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- ix. "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- x. "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the State, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which the Contractor has a contract or

understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.
- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.
- (g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56;

and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.

- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.”

The Nondiscrimination Certifications can be found at the Office of Policy and Management website.

<http://www.ct.gov/opm/cwp/view.asp?a=2982&Q=390928>

9. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

10. Connecticut Freedom of Information Act

- (a) **Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.

(b) Confidential Information. The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

11. Service of Process

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

12. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

13. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit C, and hereby made part of this Contract.

14. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

15. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

16. Audit and Inspection of Plants, Places of Business and Records

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

17. Campaign Contribution Restriction

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit D.

18. Tangible Personal Property

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
 - (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
 - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
 - (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
 - (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

19. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free “HOT LINE” telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The “HOT LINE” telephone number will be available during normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

20. Consulting Agreement Affidavit

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in the information contained in the form, a contractor shall submit the updated form, as applicable, either (i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

EXHIBIT A

TITLE VI CONTRACTOR ASSURANCES

During the performance of this Contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. Compliance with Regulations: The Contractor shall comply with the regulations relative to nondiscrimination in federally assisted programs of the United States Department of Transportation (hereinafter, "USDOT"), Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the "Regulations"), which are herein incorporated by reference and made a part of this contract.

2. Nondiscrimination: The Contractor, with regard to the work performed by it during the Contract, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Subsection 5 of the Regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment:

In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.

4. Information and Reports: The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Connecticut Department of Transportation (ConnDOT) or the Funding Agency (FHWA, FTA and FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to ConnDOT or the Funding Agency, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance: In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the ConnDOT shall impose such sanctions as it or the Funding Agency may determine to be appropriate, including, but not limited to:

- A. Withholding contract payments until the Contractor is in-compliance; and/or
- B. Cancellation, termination, or suspension of the Contract, in whole or in part.

6. Incorporation of Provisions: The Contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the ConnDOT or the Funding Agency may -direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the ConnDOT to enter into such litigation to protect the interests of the Funding Agency, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States

EXHIBIT B**CONTRACTOR WORKFORCE UTILIZATION / EQUAL EMPLOYMENT OPPORTUNITY****1. Project Workforce Utilization Goals:**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the Appendix A below.

STATE FUNDED PROJECTS (only)**APPENDIX A****(Labor Market Goals)****LABOR MARKET AREA GOAL**
Female**Minority**

Bridgeport				14%
6.9%				
Ansonia	Beacon Falls	Bridgeport	Derby	
Easton	Fairfield	Milford	Monroe	
Oxford	Seymour	Shelton	Stratford	
Trumbull				
Danbury				4%
6.9%				
Bethel	Bridgewater	Brookfield	Danbury	
Kent	New Fairfield	New Milford	Newtown	
Redding	Ridgefield	Roxbury	Sherman	
Washington				
Danielson				2%
6.9%				
Brooklyn	Eastford	Hampton	Killingly	
Pomfret	Putnam	Scotland	Sterling	
Thompson	Voluntown	Union	Woodstock	
Hartford				15%
6.9%				

Andover	Ashford	Avon	Barkhamsted
Belin	Bloomfield	Bolton	Bristol
Burlington	Canton	Chaplin	Colchester
Columbia	Coventry	Cromwell	Durham
East Granby	East Haddam	East Hampton	East Hartford
East Windsor	Ellington	Enfield	Farmington
Glastonbury	Granby	Haddam	Hartford
Harwinton	Hebron	Lebanon	Manchester
Mansfield	Marlborough	Middlefield	Middletown
Newington	Plainville	Plymouth	Portland
Rocky Hill	Simsbury	Somers	South Windsor
Southington	Stafford	Suffield	Tolland
Vernon	West Hartford	Wethersfield	Willington
Winchester	Windham	Windsor	Windsor Locks

Lower River				2%
6.9%				

Chester	Deep River	Essex	Old Lyme
Westbrook			

New Haven				14%
6.9%				

Bethany	Branford	Cheshire	Clinton
East Haven	Guilford	Hamden	Killingworth
Madison	Meriden	New Haven	North Branford
North Haven	Orange	Wallingford	West Haven
Woodbridge			

New London				8%
6.9%				

Bozrah	Canterbury	East Lyme	Franklin
Griswold	Groton	Ledyard	Lisbon
Montville	New London	North Stonington	Norwich
Old Lyme	Old Saybrook	Plainfield	Preston
Salem	Sprague	Stonington	Waterford
Hopkinton	RI – Westerly Rhode Island		

Stamford				17%
6.9%				

Darien	Greenwich	New Canaan	Norwalk
Stamford	Weston	Westport	Wilton

Torrington				2%
6.9%				

Canaan	Colebrook	Cornwall	Goshen
Hartland	Kent	Litchfield	Morris
Norfolk	North Canaan	Salisbury	Sharon
Torrington	Warren		

Waterbury 6.9%				10%
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Bethlehem
Southbury
Wolcott

Middlebury
Thomaston
Woodbury

Naugatuck
Waterbury

Prospect
Watertown

EXHIBIT C

Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
 - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
 - (2) “Business Associate” shall mean the Contractor.
 - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
 - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
 - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
 - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
 - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
 - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
 - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
 - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
 - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
 - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
 - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
 - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
 - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
 - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.
 - (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.
- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations

(16) Obligations in the Event of a Breach

- A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
- B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
- C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.
 4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
 5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to

individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
 - E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
 - (2) Specific Use and Disclosure Provisions
 - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
 - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.
 - (C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).
- (j) Obligations of Covered Entity.

- (1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.
 - (2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.
 - (3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.
- (k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.
- (l) Term and Termination.
- (1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.
 - (2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:
 - (A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or
 - (B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or
 - (C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.
 - (3) Effect of Termination
 - (A) Except as provided in (l)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity

within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

- (1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.
- (2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.
- (3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.
- (4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.
- (5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.
- (6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the

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HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations

This notice is provided under the authority of Connecticut General Statutes §9-612(g)(2), as amended by P.A. 10-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (*italicized words are defined on the reverse side of this page*).

CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract or state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor or principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

DUTY TO INFORM

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

PENALTIES FOR VIOLATIONS

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

CONTRACT CONSEQUENCES

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may resulting the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to "Lobbyist/Contractor Limitations."

DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor’s state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

EXHIBIT E

(state wages will be inserted here)

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

**Minimum Rates and Classifications
for Heavy/Highway Construction**

**Connecticut Department of Labor
Wage and Workplace Standards Division**

ID#: H 25592

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:

Project Town: Orange

FAP Number:

State Number: 106-127

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

CLASSIFICATION

Hourly Rate

Benefits

01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**

1) Boilermaker	33.79	34% + 8.96
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1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	33.48	31.66
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2) Carpenters, Piledrivermen	32.60	25.34
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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

2a) Diver Tenders	32.60	25.34
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3) Divers	41.06	25.34
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03a) Millwrights	33.14	25.74
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4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	49.75	21.05
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4a) Painters: Brush and Roller	33.62	21.05
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4b) Painters: Spray Only	36.62	21.05
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4c) Painters: Steel Only	35.62	21.05
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As of:

Friday, January 18, 2019

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

4d) Painters: Blast and Spray	36.62	21.05
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4e) Painters: Tanks, Tower and Swing	35.62	21.05
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5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	37.50	27.91+3% of gross wage
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6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + a
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7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	42.62	31.21
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---LABORERS----

8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	30.05	20.10
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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	30.30	20.10
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10) Group 3: Pipelayers	30.55	20.10
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11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	30.55	20.10
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12) Group 5: Toxic waste removal (non-mechanical systems)	32.05	20.10
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13) Group 6: Blasters	31.80	20.10
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Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	31.05	20.10
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Group 8: Traffic control signalmen	16.00	20.10
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As of:

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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

Group 9: Hydraulic Drills	29.30	18.90
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---LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and
Liner Plate Tunnels in Free Air.----

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	32.22	20.10 + a
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13b) Brakemen, Trackmen	31.28	20.10 + a
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---CLEANING, CONCRETE AND CAULKING TUNNEL----

14) Concrete Workers, Form Movers, and Strippers	31.28	20.10 + a
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15) Form Erectors	31.60	20.10 + a
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As of:

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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

---ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL
IN FREE AIR:----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	31.28	20.10 + a
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17) Laborers Topside, Cage Tenders, Bellman	31.17	20.10 + a
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18) Miners	32.22	20.10 + a
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---TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED
AIR: ----

18a) Blaster	38.53	20.10 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	38.34	20.10 + a
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As of:

Friday, January 18, 2019

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	36.41	20.10 + a
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21) Mucking Machine Operator	39.11	20.10 + a
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---TRUCK DRIVERS---(*see note below)

Two axle trucks	29.13	23.33 + a
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Three axle trucks; two axle ready mix	29.23	23.33 + a
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Three axle ready mix	29.28	23.33 + a
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Four axle trucks, heavy duty trailer (up to 40 tons)	29.33	23.33 + a
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As of:

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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

Four axle ready-mix	29.38	23.33 + a
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Heavy duty trailer (40 tons and over)	29.58	23.33 + a
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Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.38	23.33 + a
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---POWER EQUIPMENT OPERATORS---		
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Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	39.55	24.30 + a
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Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	39.23	24.30 + a
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Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	38.49	24.30 + a
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As of:

Friday, January 18, 2019

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	38.10	24.30 + a
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Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	37.51	24.30 + a
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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	37.51	24.30 + a
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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.30 + a
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Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	36.86	24.30 + a
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Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	36.46	24.30 + a
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Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	36.03	24.30 + a
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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc. 33.99 24.30 + a

Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment. 33.99 24.30 + a

Group 12: Wellpoint Operator. 33.93 24.30 + a

Group 13: Compressor Battery Operator. 33.35 24.30 + a

Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain). 32.21 24.30 + a

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator. 31.80 24.30 + a

Group 16: Maintenance Engineer/Oiler 31.15 24.30 + a

As of:

Friday, January 18, 2019

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.30 + a
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Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	33.04	24.30 + a
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**NOTE: SEE BELOW

---LINE CONSTRUCTION---(Railroad Construction and Maintenance)---

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
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21) Heavy Equipment Operator	42.26	6.5% + 19.88
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22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
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As of:

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Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

23) Driver Groundmen	26.50	6.5% + 9.00
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23a) Truck Driver	40.96	6.5% + 17.76
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---LINE CONSTRUCTION---

24) Driver Groundmen	30.92	6.5% + 9.70
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25) Groundmen	22.67	6.5% + 6.20
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26) Heavy Equipment Operators	37.10	6.5% + 10.70
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27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
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As of:

Friday, January 18, 2019

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

28) Material Men, Tractor Trailer Drivers, Equipment Operators 35.04 6.5% + 10.45

As of:

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Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

***Note: Hazardous waste premium \$3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

As of: Friday, January 18, 2019

Project: Rehabilitation Of Bridge Number 00948, Route 34 Over Wepawaug River

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of:

Friday, January 18, 2019

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

- a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

- a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Information Bulletin ***Occupational Classifications***

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ***License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.**

- **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. **License required by Connecticut General Statutes: R-1,2,5,6.*

- **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal)).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- **LEAD PAINT REMOVAL**

- Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

- Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- **SHEETMETAL WORKERS**

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems.

****License required per Connecticut General Statutes: F-1,2,3,4.***

- **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➤ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

Statute 31-55a

Last Updated: June 02, 2008

You are here: [DOL Web Site](#) ▶ [Wage and Workplace Issues](#) ▶ Statute 31-55a

- Special Notice -

To All State and Political Subdivisions, Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the *contractor's* responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace

Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd.,
Wethersfield, CT 06109 at (860)263-6790.

[Workplace Laws](#)

Published by the Connecticut Department of Labor, Project Management Office

November 29, 2006

Notice
To All Mason Contractors and Interested Parties
Regarding Construction Pursuant to Section 31-53 of the
Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;
- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm>; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Sec. 31-53b. Construction safety and health course. Proof of completion required for employees on public building projects. Enforcement. Regulations. (a) Each contract entered into on or after July 1, 2007, for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public building project by the state or any of its agents, or by an political subdivision of the state or any of its agents, where the total cost of all work to be performed by all contractors and subcontractors in connection with the contract is at least one hundred thousand dollars, shall contain a provision requiring that, not later than thirty days after the date such contract is awarded, each contractor furnish proof to the Labor Commissioner that all employees performing manual labor on or in such public building, pursuant to such contract, have completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, in the case of telecommunications employees, have completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any employee required to complete a construction safety and health course required under subsection (a) of this section who has not completed the course shall be subject to removal from the worksite if the employee does not provide documentation of having completed such course by the fifteenth day after the date the employee is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2007, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) For the purposes of this section, "public building" means a structure, paid for in whole or in part with state funds, within a roof and within exterior walls or fire walls, designed for the housing, shelter, enclosure and support or employment of people, animals or property of any kind, including, but not limited to, sewage treatment plants and water treatment plants, "Public building" does not include site work, roads or bridges, rail lines, parking lots or underground water, sewer or drainage systems including pump houses or other utility systems.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I, _____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

Street

City

and all of its subcontractors will pay all workers on the

Project Name and Number

Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

Signed

Subscribed and sworn to before me this _____ day of _____, 2004.

Notary Public

 Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109